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# **Decker Area Mines Comprehensive Social Sciences Study**

**prepared for:**

Montana Department of State Lands  
and  
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**prepared by:**

Mountain West Research-North, Inc.

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## 5. DESCRIPTION OF THE PROPOSED ACTIONS





## 5. DESCRIPTION OF THE PROPOSED ACTIONS

### 5.1 Introduction

This chapter describes the characteristics of the proposed actions that would influence the nature and intensity of their socioeconomic impacts. These characteristics include the proposed locations of the mines, employment schedules, labor supplies, residential distributions of local and nonlocal workers, and spatial distribution of local purchases. The chapter begins with a brief overview of the locations of the proposed mines and the five scenarios that could be used to develop them.

### 5.2 Location of Mines

The proposed KME Mine would lie 22 miles north of Sheridan, and about 0.3 miles east of Decker. The Consol Level 1 and Level 2 mines would lie 2 miles west of Decker and 22 miles north of Sheridan, Wyoming. The proposed Youngs Creek and Tanner Creek mines would be located on the southeast corner of the Crow Indian Reservation approximately 15 miles southeast of Wyola and 10 miles west of Decker, Montana.

### 5.3 Development Scenarios

As shown in Table 5.3-1, the proposed actions could be developed in at least five different scenarios. Under the KME Mine scenario, the KME Mine and railroad would be developed with access via a road from Decker, Montana. The Consol Mine and railroad could be developed under two different scenarios. Under the Consol Level 1 Mine scenario, a single mine would be built. Under the Consol Level 2 Mine scenario, additional construction would take place thirteen years after project initiation to expand and lengthen the life of the Consol Level 1 Mine. In both cases, access would be via a road from Decker. Similarly, under the Youngs Creek Mine scenario, the Youngs Creek Mine and railroad would be developed. Access to the mine site would be provided by means of a new road that would be constructed from Lodge Grass, Montana.

Under the cumulative scenario, the KME, Consol Level 2 and Youngs Creek, mines would be developed. However, the cumulative scenario also assumes that the Tanner Creek Mine would be developed near the Youngs Creek site. The cumulative scenario also differs from the individual mine scenario in one other important respect: it assumes that the Lodge Grass-Youngs Creek Road would increase access to the Consol and KME mine sites near Decker. The increased access provided would raise the proportion of Crow Indians employed at the Consol and KME mines but would not otherwise affect the residential distribution patterns of workers or the overall employment levels at any of the mines. Hence, the only difference between the without-road and with-road activities in Table 5.3-1 is in the proportion of KME and Consol Level 1 and 2 employment which is forecast to be held by Crow Indians.

### 5.4 Labor Supplies

This analysis divided potential labor supplies for mine construction and operation into three distinct categories: local Indians, local non-Indians, and nonlocals, who were assumed to be all non-Indians. The assumptions used in deriving probabilities of employment for each of these groups are discussed below. These assumptions were used to develop the projected employment schedules presented in tables 5.4-1 through 5.4-9.

TABLE 5.3-1

## Activities Included In Development Scenarios

Activities Included	Scenario				Cumulative
	KME Mine	Consol Level 1 Mine	Consol Level 2 Mine	Youngs Creek Mine	
KME Mine (without road)	X				
KME Mine (with road)					X
Consol Level 1 Mine (without road)		X			
Consol Level 1 Mine (with road)					X
Consol Level 2 Mine (without road)			X		
Consol Level 2 Mine (with road)					X
Youngs Creek Mine				X	X
Tanner Creek Mine					X
KME Railroad	X				X
Consol Level 1 Railroad		X			X
Consol Level 2 Railroad			X		X
Youngs Creek Railroad				X	X
Tanner Creek Railroad					X

Source: Mountain West Research-North, Inc., 1982.

TABLE 5.4-1  
KME Mine Scenario  
(without road)  
Construction and Operations Employment Schedule  
1985-2006

Year	Construction				Operations		
	Local		Nonlocal		Local		
	Total	Indian	Non-Indian	Non-Indian	Total	Indian	Non-Indian
1985	63	8	55	55			
1986	156	21	135	136			
1987	36	5	31	31	235	17	218
1988					265	19	246
1989					265	19	246
1990					265	19	246
1991					265	19	246
1992					265	19	246
1993					265	19	246
1994					265	19	246
1995					265	19	246
1996					265	19	246
1997					265	19	246
1998					265	19	246
1999					265	19	246
2000					265	19	246
2001					265	19	246
2002					265	19	246
2003					265	19	246
2004					248	17	231
2005					195	14	181
2006					157	11	146

Source: Mountain West Research-North, Inc., 1982.

TABLE 5.4-2

KME Mine Scenario  
(with road)  
Construction and Operations Employment Schedule  
1985-2006

Year	Construction				Operations		
	Local		Nonlocal		Local		Non-Indian
	Total	Indian	Non-Indian	Non-Indian	Total	Indian	
1985	65	11	54	53			
1986	159	27	132	133			
1987	36	6	30	31	235	22	213
1988					265	25	240
1989					265	25	240
1990					265	25	240
1991					265	25	240
1992					265	25	240
1993					265	25	240
1994					265	25	240
1995					265	25	240
1996					265	25	240
1997					265	25	240
1998					265	25	240
1999					265	25	240
2000					265	25	240
2001					265	25	240
2002					265	25	240
2003					265	25	240
2004					248	23	225
2005					195	18	177
2006					157	15	142

Source: Mountain West Research-North, Inc., 1982.

TABLE 5.4-3

Consol Level 1 Mine Scenario  
(without road)  
Construction and Operations Employment Schedule  
1985-1998

Year	Construction				Operations		
	Local		Nonlocal		Local		Non-Indian
	Total	Indian	Non-Indian	Non-Indian	Total	Indian	
1985	3	0	3	5			
1986	48	9	39	78	198	14	184
1987	80	15	65	133	448	32	416
1988					538	39	499
1989					604	43	561
1990					604	43	561
1991					604	43	561
1992					604	43	561
1993					604	43	561
1994					604	43	561
1995					604	43	561
1996					247	18	229
1997					247	18	229
1998					247	18	229

Source: Mountain West Research-North, Inc., 1982.

TABLE 5.4-4  
 Consol Level 1 Mine Scenario  
 (with road)  
 Construction and Operations Employment Schedule  
 1985-1998

Year	Construction				Operations		
	Local		Non-Indian	Non-Indian	Local		Non-Indian
	Total	Indian			Total	Indian	
1985	3	0	3	5			
1986	50	12	38	76	198	19	179
1987	84	20	64	129	448	42	406
1988					538	51	487
1989					604	57	547
1990					604	57	547
1991					604	57	547
1992					604	57	547
1993					604	57	547
1994					604	57	547
1995					604	57	547
1996					247	23	224
1997					247	23	224
1998					247	23	224

Source: Mountain West Research-North, Inc., 1982.

TABLE 5.4-5

Consol Level 2 Mine Scenario  
(without road)  
Construction and Operations Employment Schedule  
1985-2015

Year	Construction				Operations		
	Local		Nonlocal		Local		
	Total	Indian	Non-Indian	Non-Indian	Total	Indian	Non-Indian
1985	3	0	3	5			
1986	48	9	39	78	198	14	184
1987	80	15	65	133	448	32	416
1988					538	39	499
1989					604	43	561
1990					604	43	561
1991					604	43	561
1992					604	43	561
1993					604	43	561
1994					604	43	561
1995					604	43	561
1996					607	44	563
1997	48	9	39	78	607	44	563
1998	80	15	65	133	800	58	742
1999					938	68	870
2000					938	68	870
2001					938	68	870
2002					938	68	870
2003					938	68	870
2004					938	68	870
2005					938	68	870
2006					938	68	870
2007					938	68	870
2008					938	68	870
2009					938	68	870
2010					938	68	870
2015					938	68	870

Source: Mountain West Research-North, Inc., 1982.

TABLE 5.4-6  
 Consol Level 2 Mine Scenario  
 (with road)  
 Construction and Operations Employment Schedule  
 1985-2015

Year	Construction				Operations		
	Local		Nonlocal		Local		Non-Indian
	Total	Indian	Non-Indian	Non-Indian	Total	Indian	
1985	3	0	3	5			
1986	50	12	38	76	198	19	179
1987	84	20	64	129	448	42	406
1988					538	51	487
1989					604	57	547
1990					604	47	547
1991					604	57	547
1992					604	57	547
1993					604	57	547
1994					604	57	547
1995					604	57	547
1996					607	57	550
1997	50	12	38	76	607	57	550
1998	84	20	64	129	800	75	725
1999					938	88	850
2000					938	88	850
2001					938	88	850
2002					938	88	850
2003					938	88	850
2004					938	88	850
2005					938	88	850
2006					938	88	850
2007					938	88	850
2008					938	88	850
2009					938	88	850
2010					938	88	850
2015					938	88	850

Source: Mountain West Research-North, Inc., 1982.



TABLE 5.4-7

Youngs Creek Mine Scenario  
Construction and Operations Employment Schedule  
1986-2015

Year	Construction				Operations		
	Local		Nonlocal		Local		
	Total	Indian	Non-Indian	Non-Indian	Total	Indian	Non-Indian
1986	33	25	8	17			
1987	143	107	36	72			
1988	216	162	54	109	200	120	80
1989	16	12	4	9	275	165	110
1990					300	180	120
1991					300	180	120
1992					300	180	120
1993					300	180	120
1994					300	180	120
1995					300	180	120
1996					300	180	120
1997					300	180	120
1998					300	180	120
1999					300	180	120
2000					300	180	120
2001					300	180	120
2002					300	180	120
2003					300	180	120
2004					300	180	120
2005					300	180	120
2006					300	180	120
2007					300	180	120
2008					300	180	120
2009					300	180	120
2010					300	180	120
2015					300	180	120

Source: Mountain West Research-North, Inc., 1982.

TABLE 5.4-8

Tanner Creek Mine Scenario  
Construction and Operations Employment Schedule  
1996-2015

Year	Construction				Operations		
	Local		Nonlocal		Local		
	Total	Indian	Non-Indian	Non-Indian	Total	Indian	Non-Indian
1996	100	75	25	50			
1997	183	137	46	92	200	80	120
1998					275	110	165
1999					290	116	174
2000					300	120	180
2001					350	140	210
2002					383	153	230
2003					383	153	230
2004					383	153	230
2005					383	153	230
2006					383	153	230
2007					383	153	230
2008					383	153	230
2009					383	153	230
2010					383	153	230
2015					383	153	230

Source: Mountain West Research-North, Inc., 1982.

TABLE 5.4-9

Railroad Employment by Scenario  
(Local and Non-Indian)  
1985-2015

Year	KME Railroad	Consol Level 1 Railroad	Consol Level 2 Railroad	Youngs Creek Railroad	Tanner Creek Railroad	Cumulative Railroad
1985						42
1986						66
1987	17	25	25			107
1988	25	41	41	16		132
1989	25	66	66	41		157
1990	25	66	66	66		157
1991	25	66	66	66		157
1992	25	66	66	66		157
1993	25	66	66	66		157
1994	25	66	66	66		157
1995	25	66	66	66		157
1996	25	66	66	66		157
1997	25	66	83	66		174
1998	25	83	83	66	25	199
1999	25	99	99	66	41	231
2000	25	133	133	66	58	282
2001	25	133	133	66	66	290
2002	25	133	133	66	75	299
2003	22	133	133	66	83	304
2004	22	133	133	66	83	304
2005		133	133	66	83	282
2006		133	133	66	83	282
2007		133	133	66	83	282
2008		133	133	66	83	282
2009		133	133	66	83	282
2010		133	133	66	83	282
2015		133	133	66	83	282

Source: Mountain West Research-North, Inc., 1982.

#### 5.4.1 Local Indians

Recent data on Indian employment by firm for energy-related industries in the study area revealed that 7.2 percent of total employment was composed of Indians. Hence, under without-road conditions, it was assumed that 7.2 percent of all construction and operations employment at the proposed mines would be composed of Indians.<sup>1</sup> However, under the cumulative scenario, when a road would increase the accessibility of the Consol and KME mines to Crow Indians in the Crow Agency and Lodge Grass areas, it seems reasonable to increase the proportion of Crow Indian employment. In discussions with the Crow Tribe, it was decided that the proposed road would increase Crow employment at the Consol and KME mines by 30 percent. Hence, under the cumulative scenario, it was assumed that Indian employment at these two mines would comprise 9.4 percent of total construction and operations employment.

Because of their location near Crow population centers, it was assumed that 100 percent of all Indian employment at the Youngs Creek and Tanner Creek mines would be composed of Crow Indians. However, based on the 1982 proportions at the Decker area mines, it was assumed that 73 percent of all Indian employment at the KME and Consol mines would be Crow and 27 percent would be Northern Cheyenne.

#### 5.4.2 Local Non-Indian Workers

This group includes non-Indians who currently live within commuting distance of the proposed mines. The proportion of total construction employment captured by this group was calculated as a residual after local Indian and nonlocal employment had been allocated. It was assumed that operations work forces would be composed entirely of local workers, the local non-Indian component of operations employment constitutes the remainder after local Indian employment had been allocated. Assumptions about the residential location of the local workers were based on the distribution of workers at the Big Horn and Decker mines (see Section 5.6 and Hooper 1983).

#### 5.4.3 Nonlocal Construction Workers

This group includes workers who currently live elsewhere but who would move to the project area to obtain employment during the proposed mines' construction phases. Because the 67 percent nonlocal figure from the Construction Worker Profile (Mountain West Research, Inc. 1975) corresponds very closely to the percentage of nonlocal workers on the Spring Creek Mine construction work force, it was assumed that 67 percent of the non-Indian construction work forces on the proposed mines would be composed of nonlocals.

#### 5.4.4 Railroad Employment

Although the exact routes of rail systems to transport coal from the proposed mines are not known, it was assumed that they would leave the mine sites and run south through Sheridan County. All rail employment was assumed to be local non-Indians from Sheridan County with 8.3 operations workers employed for each million tons per year of coal shipped. (Coefield, personal communication, November 1982.)

### 5.5 Employment Schedules

Table 5.5-1 presents projections of construction and operations employment for each of the proposed mines and for the cumulative scenario. As shown, the construction periods for the KME and Consol Level 1

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<sup>1</sup>This assumption presumes that none of the nonreservation mines would initiate a significant Indian preference hiring program.

TABLE 5.5-1  
Construction and Operations Employment Schedules  
by Scenarios  
1985-2015

Year	KME		Consol Level 1		Consol Level 2a		Youngs Creek		Tanner Creek		Cumulative (KME, Consol 2, Youngs Creek, Tanner Creek)	
	Const.	Oper.	Const.	Oper.	Const.	Oper.	Const.	Oper.	Const.	Oper.	Const.	Oper.
1985	118		8		8						134	
1986	292		128	198	128	198	50				470	198
1987	67	235	213	448	213	448	215				495	683
1988		265		538		538	325	200			325	1,003
1989		265		604		604	25	275			25	1,144
1990		265		604		604		300				1,169
1991		265		604		604		300				1,169
1992		265		604		604		300				1,169
1993		265		604		604		300				1,169
1994		265		604		604		300				1,169
1995		265		604		604		300				1,169
1996		265		247		607		300	150			1,169
1997		265		247		607		300	275	200	150	1,172
1998		265		247	126	800		300		275	401	1,372
1999		265			213	938		300		290	213	1,640
2000		265				938		300		300		1,793
2001		265				938		300		350		1,803
2002		265				938		300		383		1,853
2003		265				938		300		383		1,886
2004		248				938		300		383		1,886
2005		195				938		300		383		1,869
2006		157				938		300		383		1,816
2007						938		300		383		1,778
2008						938		300		383		1,621
2009						938		300		383		1,621
2010						938		300		383		1,621
2015						494		0		383		1,621
												877

Source: Mountain West Research-North, Inc., 1982.

<sup>a</sup>Includes Consol Level 1 activities.



mines would begin in 1985 and would last three years. Construction employment would peak at 292 workers at the KME mine and at 213 workers at the Consol Level 1 Mine. The operations period for the KME mine would begin in 1987 and end in 2006, with operations period employment peaking at 265 workers. Consol Level 1 would have a shorter operations period, lasting from 1986 to 1998, but employing a larger work force which peaks at 604 workers during the 1989-1995 period. A two-year construction period would also be required to expand the Consol Mine in 1997 and 1998 under the Consol Level 2 scenario. The Consol Level 2 operations work force would reach a temporary peak of 604 workers before increasing to 938 workers in 1999 after the mine is expanded. The Youngs Creek Mine would have a four-year construction period lasting from 1986 to 1989 and employ a peak of 325 workers. Operations period employment at the Youngs Creek Mine would reach 300 workers in 1990 and last through 2010. Employment at the Tanner Creek Mine, which would occur only under the cumulative scenario, would peak at 275 workers during the 1996-97 construction period and at 383 workers during the operations period, which would begin in 1997.

Under the cumulative scenario, construction employment would peak at 495 workers in 1987 when the KME, Consol Level 1, and Youngs Creek mines would be under construction and again in 1997 at 1,372 workers when Consol expansion and Tanner Creek construction would be under way. Cumulative operations employment would reach the 1,000 worker level in 1988 and remain at about 1,200 workers through 1996. After 1996, operations employment would increase rapidly as Consol is expanded and Tanner Creek is constructed. Operations employment would remain above 1,800 during the early 2000s and then fall to 1,600 after the KME Mine is closed in 2006.

It is assumed that construction workers' wages would be about \$37,383 in 1982 dollars at the Consol and KME mines and about \$32,715 in 1982 dollars at the Youngs Creek and Tanner Creek mines. Operations workers' wages were assumed to be \$37,534 at the Consol and KME mines and \$37,383 at the Youngs Creek and Tanner Creek mines. The above were provided by Consol for the Consol and KME mines. The Youngs Creek and Tanner Creek figures were derived from local 1980 averages for the mine construction and operations sectors.

## 5.6 Worker Residential Distributions

The residential distribution of the work forces at the proposed mines across study area communities is a critical variable in assessing socioeconomic impacts. For construction and operations employees at the proposed mines, separate residential distributions were derived for each labor component (local Indians, local non-Indians, and nonlocal workers). The residential distributions were assumed to apply for each labor component group, regardless of the mine at which they were employed.

Indians employed by the mining companies were assumed to retain their residential locations on the reservation. Hence, Crow employment was distributed across the Crow Reservation according to the distribution of current population. Northern Cheyenne employment was distributed solely to the portion of the Northern Cheyenne Reservation located in Big Horn County. The residential distributions utilized in the forecasts are presented in Table 5.6-1.

Before allocating non-Indian workers to communities within the study area, a review of current and projected housing and residential lot availability was conducted throughout the study area. As shown in Table 5.6-2, there is substantial potential for residential development throughout all study area communities and rural areas. Hence, it was assumed that the availability of residential land would not constrain any allocation area from accommodating reasonable numbers of new residents.

The assumed residential distribution of local non-Indian workers is presented in Table 5.6-3. The operations worker distribution in the table was derived from a complete count of the addresses of operations workers currently employed at the Decker and Big Horn mines. The construction worker distribution assumed that workers who expected to be employed for short periods of time would be willing to commute

TABLE 5.6-1

Residential Distribution of Local Indian  
Construction and Operations Workers  
(percent)

Allocation Area	Youngs Creek, Tanner Creek		Consol Level 1&2 KME	
	Const.	Oper.	Const.	Oper.
Crow Agency and NE Reservation	32	35	32	25
Lodge Grass and SE Reservation	51	56	40	45
Central Crow Reservation	17	9	1	3
Northern Cheyenne Reservation			27	27
TOTAL	100	100	100	100

Source: Mountain West Research-North, Inc., 1982.

TABLE 5.6-2

Availability of Housing and Residential Land  
Project Area

Allocation Area	Current Availability	Potential Development (availability)
City of Sheridan	559 residential lots, concentrated primarily in ten new subdivisions. Lots zoned for a variety of residential densities.	City has demonstrated willingness to annex new residential areas and provide them with city sewer and water services.
Greater Sheridan Area	857 platted lots, located primarily in 29 subdivisions.	Area should continue to provide lots for lower density, single family residences, and mobile homes. Multi-family development appears less likely.
Ranchester-Dayton Area	Ranchester and Dayton have several lots available. Other larger acreages available outside of communities. No exact lot counts available.	Local landowners have indicated their willingness to have land developed if demand arises.
Rest of Sheridan County	313 platted lots, located primarily in 8 existing subdivisions.	Lots will continue to be available, but may only be within financial reach of those who can develop their own sewer and water facilities.
Hardin and Hardin Area	City of Hardin has several lots available.	City has demonstrated willingness to annex new residential areas and provide them with city sewer and water services. Several new subdivisions appear likely to be annexed soon.
Decker Area	A few residential parcels are currently for sale here.	Local landowners have indicated they would be willing to have land developed if demand arose.
Crow Agency and NE Crow Reservation, Lodge Grass and SE Crow Reservation, Northern Cheyenne Reservation	These areas currently have severe housing shortages, with overcrowding in many Indian homes.	The availability of new housing for Indians will depend on a variety of factors, including the availability of government financing. However, the availability of residential land should not be a constraint for either Indian or non-Indian housing development.

Source: Mountain West Research-North, Inc., 1982.



TABLE 5.6-3  
Residential Distribution of Local  
Non-Indian Construction and Operations Workers  
(percent)

Allocation Area	Construction Workers	Operations Workers
City of Hardin	13	
Decker Area		5
Crow Agency and NE Reservation	4	
Lodge Grass and SE Reservation	4	
City of Sheridan	49	53
Greater Sheridan Area	21	33
Ranchester-Dayton Area	9	9

Source: Mountain West Research-North, Inc., 1982.

longer distances and would therefore be more likely to come from the Crow Reservation and Hardin. Hence, the construction worker distribution simply reweighted the operations worker distribution in favor of these Big Horn County areas.

As shown in Table 5.6-4, nonlocal construction workers were assumed to have a residential pattern similar to that of local operations workers. However, it was assumed that nonlocal construction workers would have preferences for the more urban amenities and higher density housing offered by Sheridan and therefore be more likely to live there. Hence, the residential distribution for nonlocal construction workers was based on an adjustment to actual operations worker patterns (discussed above) to give more weight to Sheridan and less weight to the greater Sheridan and Ranchester-Dayton areas. The railroad operations worker distribution was based on similar assumptions and is presented in Table 5.6-5.

## 5.7 Local Purchases

The total economic impact of a given project includes its direct, indirect, and induced effects. Direct effects include those from population associated with project employment. Indirect effects are those from employment generated by purchases of materials and equipment by the project. Induced effects are those from employment generated by purchases by direct and indirect workers and their families. This section discusses the potential magnitude of indirect effects from local materials and equipment purchases by the proposed mines.

Local purchases for the proposed mines during their construction and operations phases are shown in Table 5.7-1. The methods used to derive these projections and allocate them across communities and economic sectors are discussed below.

### 5.7.1 Construction Phase Purchases

Total equipment and material expenses during the construction phase of three different-sized coal mines (five, ten, and fifteen mmtpy) were obtained from unpublished information supplied by GeoWest, Inc. of Billings. Total local construction purchases were calculated by evaluating the availability of the goods and services in the local area (defined as Hardin and the city of Sheridan) through a review of the area's business composition. Local construction purchases were allocated over time, based on the construction employment schedule.

As Table 5.7.1-1 shows, it was forecast that 72 percent of the local construction purchases would be made in the trade sector compared to 21 percent in the construction sector. The manufacturing and service sectors were forecast to receive 6 and 1 percent of local construction purchases, respectively. Table 5.7.1-2 shows that all of the manufacturing and services purchases and 99 percent of construction and trade purchases were forecast to be made in the city of Sheridan with about 1 percent of construction and trade purchases forecast to be made in Hardin.

### 5.7.2 Operations Period

Total operations purchases for a six-mmtpy western surface coal mine were obtained from previous research in Wyoming by Mountain West Research (see Table 5.7.2-1). Based on a review of locally available goods and services, local purchases were estimated and then forecast based on a linear relationship to production. The sector allocation of local purchases, shown in Table 5.7.2-2, was based on Bechtel information, interviews with Decker area mine operators, and review of locally appropriate input-output direct technical coefficients. The spatial allocation of local purchases, shown in Table 5.7.2-3, was based on interviews with mine operators and review of available goods and services in each county.

TABLE 5.6-4  
Residential Distribution of Nonlocal  
Construction Workers

Allocation Area	Percent of Workers
Sheridan	59
Greater Sheridan Area	31
Ranchester-Dayton Area	5
Decker Area	5

Source: Mountain West Research-North,  
Inc., 1982.

TABLE 5.6-5  
Residential Distribution of Nonlocal  
Railroad Workers

Allocation Area	Percent of Workers
Sheridan	64
Greater Sheridan Area	20
Rest of County	16

Source: Mountain West Research-North,  
Inc., 1982.

TABLE 5.7-1

Local Purchases of Proposed Mines  
(in thousands of 1972 dollars)

Year	KME		Consol Level 1		Consol Level 2		Youngs Creek		Tanner Creek		Cumulative (KME, Consol 2, Youngs Creek, Tanner Creek)	
	Const.	Oper.	Const.	Oper.	Const.	Oper.	Const.	Oper.	Const.	Oper.	Const.	Oper.
1985	581										581	
1986	903										1,896	
1987		452	887	678	887		106				1,576	1,130
1988		678	1,119	1,130	1,119	678	457				690	2,260
1989		678		1,808		1,808	690				53	3,616
1990		678		1,808		1,808	53					4,294
1991		678		1,808		1,808						4,294
1992		678		1,808		1,808						4,294
1993		678		1,808		1,808						4,294
1994		678		1,808		1,808						4,294
1995		678		1,808		1,808						4,294
1996		678		1,808		1,808						4,294
1997		678		1,808		1,808			704		704	4,746
1998		678		1,808		1,808			1,290		2,177	5,424
1999		678		904	887	2,260					1,119	6,328
2000		678			1,119	2,712				678		7,684
2001		678				3,616				1,582		7,910
2002		588				3,616				1,808		8,136
2003		588				3,616				2,034		8,272
2004		588				3,616				2,260		8,272
2005						3,616				2,260		8,272
2006						3,616				2,260		7,684
2007						3,616				2,260		7,684
2008						3,616				2,260		7,684
2009						3,616				2,260		7,684
2010						3,616				2,260		7,684
2015						1,904				2,260		4,164

Source: Mountain West Research-North, Inc., 1982.

TABLE 5.7.1-1  
Construction Local Purchases  
Sector Allocation

Sector	Percent of Construction Local Purchases
Construction	21
Manufacturing	6
Trade	72
Services	1

Source: Mountain West Research-North, Inc., 1982.

TABLE 5.7.1-2  
Construction Local Purchases  
County Allocation

Sector	City of Sheridan	Hardin
Construction	99	1
Manufacturing	100	0
Trade	99	1
Services	100	0

Source: Mountain West Research-North, Inc., 1982.

TABLE 5.7.2-1

Operations and Maintenance Costs for  
a Western Coal Surface Mine  
6 mmtpy

Item	Total Purchases 1972 \$000	Percent <sup>a</sup> of Total	Local Purchases 1972 \$000	Sector
Lumber and Wood Products	7	100	7	TR
Misc. Paper for Engineering Office, Operations	7	100	7	TR
Explosives/Blasting Materials	911	35	318	TR
Diesel Fuel/Gasoline <sup>b</sup>	188	0	0	TR
Lube and Hydraulic Fluids	485	13	63	TR
Tires	637	90	573	TR
Other Chemicals and Allied Materials	26	50	13	TR
Miscellaneous	75	55	41	TR
Mining Tipple Equipment Repair	45	50	23	SE
Dozers, Scrapers, Graders, Loaders	202	0	0	TR
Cranes and Lifts	9	0	0	TR
Automotive and Truck Repair Equipment	15	80	12	TR
Shop Tools and Equipment	20	65	13	TR
Other Nonelectrical Equipment	31	7	2	MA
Electrical Mining/Tipple Equipment Repair	56	7	4	SE
Electrical Power Cables and Connectors	18	15	3	TR
Other Electrical Equipment	23	13	3	MA

TABLE 5.7.2-1 (cont.)

Operations and Maintenance Costs for  
a Western Coal Mine Surface  
6 mmtpy

Item	Total Purchases 1972 \$000	Percent of Total	Local Purchases 1972 \$000	Sector
Coal Hauling Trucks	166	90	149	MA
Specialty Trucks	9	0	0	TR
Personnel Carriers (incl. autos)	4	100	4	TR
Auto/Truck Repair Parts	131	85	111	TR
Other Transportation Equipment	2	100	2	TR
Engineering Equipment	4	40	2	TR
Health and Safety	7	10	1	SE
Sector	1972 \$000	Percent	1972 \$000	Percent
Manufacturing Total (MA)	220	70	154	12
Trade Total (TR)	2,749	43	1,169	87
Services Total (SE)	108	26	28	2
TOTAL	3,077	44	1,351	100

Source: Mountain West Research-North, Inc., 1982.

<sup>a</sup>The percent local purchases presumes an active "buy local" policy.

<sup>b</sup>Doubled to account for rapid inflation in these products.



TABLE 5.7.2-2  
Operations Local Purchases  
Sector Allocation

Sector	Percent of Local Construction Purchases
Manufacturing	12
Trade	86
Services	2

Source: Mountain West Research-North, Inc., 1982.

TABLE 5.7.2-3  
Operations Local Purchases  
County Allocation

Sector	City of Sheridan	Hardin
Manufacturing	100	0
Trade	99	1
Services	100	0

Source: Mountain West Research-North, Inc., 1982.



6. PROPOSED ACTIONS:  
ECONOMIC/DEMOGRAPHIC FORECASTS



## 6. PROPOSED ACTIONS: ECONOMIC/DEMOGRAPHIC FORECASTS

### 6.1 Introduction

This chapter describes the population, employment, and income forecasts under each of the four scenarios. First, the KME Mine forecasts are presented. Second, the Consol levels 1 and 2 forecasts are presented. Third, the Youngs Creek Mine forecast is discussed. And finally, the cumulative scenario is presented.

Although all subcounty areas within the study region are affected by the proposed actions, they are differentially affected within and across each scenario. An important purpose of Chapter 6 is to identify those subcounty areas that are more significantly affected and for which detailed housing, facilities/services, and fiscal analyses are warranted. Chapters 7 through 10 present these analyses for significantly affected jurisdictions.

Chapter 6 is composed of five major sections. Section 6.2 notes the assumptions used to make the with-project forecasts. Section 6.3 presents the KME scenario. Section 6.4 presents the Consol levels 1 and 2 forecasts. Section 6.5 presents the Youngs Creek scenario. And finally, Section 6.6 presents the cumulative scenario forecast.

### 6.2 Assumptions

The assumptions used to make the with-project economic/demographic forecasts were described in Chapter 2, "Methodology" and in Chapter 5, "Description of the Proposed Actions."

### 6.3 KME Mine Forecast

This section describes the economic/demographic forecasts for the scenario that includes the KME Mine as the only proposed action. The section presents the total level of population, employment, and income that would arise under the scenario. Section 6.3.1 presents a regional overview, and sections 6.3.2 and 6.3.3 present forecasts for Big Horn and Sheridan counties.

#### 6.3.1 Regional Overview

As discussed in Chapter 5 and displayed in Table 5.5-1, construction of the KME Mine would begin in 1985, peak in 1986 at 292 workers, and end in 1987. The operations period would begin in 1987 and peak in the years 1988 through 2003 at 265 workers. Operations period employment at the mine would begin to decline in 2004 and end in 2006.

##### 6.3.1.1 Regional Employment

As shown in Table 6.3.1.1-1, regional employment under the KME scenario is forecast to rise from 16,959 persons in 1982 to 19,804 persons in 1990, a 17 percent increase over the eight-year period during which the KME construction and operations work forces reach their peaks. After 1990, total employment is forecast to increase more slowly, growing by 11 percent between 1990 and 2000 and by 6 percent between

TABLE 6.3.1.1-1

KME Scenario Forecast  
Total Employment by Sector  
Study Region

Year	Ag Propri etors	Ag Labor	Mining	Con struc tion	Manu factu ring	TCPU	Trade	FIRE	Ser vices	Gov ern ment	Other +com.	Total
1980	1017	861	1390	1837	572	628	3479	631	3363	3460	179	17418
1981	1017	861	1385	1593	567	635	3464	625	3374	3421	179	17125
1982	1017	861	1228	1582	566	662	3461	621	3381	3397	179	16959
1983	1017	861	1119	1563	567	672	3475	619	3402	3390	179	16867
1984	1017	861	1257	1540	585	726	3564	627	3470	3470	179	17300
1985	1017	861	1394	1656	608	753	3689	640	3568	3589	179	17956
1986	1015	861	1462	1843	630	789	3813	653	3663	3708	179	18620
1987	1014	861	1753	1629	644	819	3888	661	3758	3793	179	19001
1988	1012	861	1843	1568	654	836	3953	666	3830	3848	179	19252
1989	1011	861	1868	1574	662	843	4007	670	3899	3902	179	19479
1990	1009	861	1925	1585	673	854	4082	677	3987	3970	179	19804
1991	1008	861	1924	1589	680	848	4130	680	4057	4016	179	19974
1992	1006	861	1955	1598	689	857	4197	685	4142	4077	179	20249
1993	1005	861	1952	1602	696	863	4249	688	4215	4121	179	20436
1994	1003	861	1925	1605	703	869	4300	691	4288	4163	179	20591
1995	1002	861	1943	1615	713	878	4370	696	4382	4230	179	20871
2000	993	861	1878	1641	752	879	4678	713	4811	4502	179	21890
2005	983	861	1379	1607	772	871	6876	711	5100	5689	179	22096
2010	971	860	1055	1676	802	895	5286	742	5766	5025	179	23282
2015	963	860	495	1683	821	910	5539	765	6188	5227	179	23638

Source: Mountain West Research-North, Inc., 1982.

Note: Details may not sum due to rounding.

2000 and 2010. Total 2015 employment of 23,638 persons represents a 36 percent increase over total employment in 1980.

As Table 6.3.1.1-2 shows, both basic and nonbasic employment are forecast to exhibit the same growth patterns as total employment. However, the ratio of nonbasic employment to basic employment is forecast to decline from 118 to 100 in 1980 to 111 to 100 in 1990 after KME operations employment has peaked. This decline would continue through 2015, when the nonbasic/basic employment ratio is forecast to be 100 to 100.

#### 6.3.1.2 Regional Population

The population projections for the KME scenario exhibit the same pattern as the employment forecast. As shown in Table 6.3.1.2-1, regional population is forecast to grow by 17 percent during the 1980s, by 5 percent during the 1990s, and by 5 percent during the first decade of the 2000s. The 2015 population of 49,350 people represents a 33 percent increase over the 1980 population and implies an average annual growth rate of 0.8 percent.

#### 6.3.1.3 Regional Income

As shown in Table 6.3.1.3-1, total personal income in constant 1980 dollars under the KME scenario is forecast to increase steadily from \$357 million in 1980 to \$479 million in 2015, a 34 percent increase. However, population growth keeps per capita personal income from increasing at a similar rate. In fact, per capita personal income is forecast to decrease after 1980. By 1990, it is forecast to have risen again to \$9,203. It is then forecast to increase to \$9,409 by 2000 and \$9,585 by 2010.

### 6.3.2 Big Horn County, Reservations, and Communities

This section presents the level of economic/demographic activity resulting from the KME Mine for Big Horn County and its subcounty areas. Section 6.3.2.1 discusses employment, population, and income levels for Big Horn County. Section 6.3.2.2 presents population levels for subcounty areas.

#### 6.3.2.1 Big Horn County

As shown in Table 6.3.2.1-1, Big Horn County's employment under the KME scenario is forecast to rise from 4,449 persons in 1982 to 4,953 persons in 1990, an 11 percent increase over the eight-year period during which the KME construction and operations work forces reach their peaks. After 1990, total employment is forecast to increase more rapidly, growing by 14 percent between 1990 and 2000 and by 13 percent between 2000 and 2010. The total employment of 6,816 persons in 2015 represents a 52 percent increase over total employment in 1980.

Both basic and nonbasic employment are forecast to exhibit the same growth patterns as total employment (see Table 6.3.2.1-2). However, the ratio of nonbasic employment to basic employment is forecast to decline from 97 to 100 in 1980 to 91 to 100 in 1990 after KME operations employment has peaked. This decline continues through 2015, when the nonbasic/basic employment ratio is forecast to be 76 to 100.

The population projections for the KME scenario exhibit the same pattern as the employment forecast. As shown in Table 6.3.2.1-3, Big Horn County's population is forecast to grow by 12 percent during the 1980s, by 10 percent during the 1990s, and by 11 percent during the first decade of the 2000s. The 2015

TABLE 6.3.1.1-2

KME Scenario Forecast  
Employment by Type  
Study Region

Year	Total	Non Basic	Basic Total	Basic Non Project	Indirect Basic	Basic Project O&M	Project Construc- tion-Perm	Project Construc- tion-NLoc.
1980	17418	9412	8005	6315	51	1242	127	268
1981	17125	9272	7852	6494	53	1237	55	12
1982	16959	9153	7806	6607	55	1081	62	0
1983	16867	9088	7778	6688	58	973	57	0
1984	17300	9284	8015	6800	71	1111	32	0
1985	17956	9603	8352	6891	88	1248	69	55
1986	18620	9889	8731	7014	106	1315	160	135
1987	19001	10081	8920	7146	98	1605	39	31
1988	19252	10183	9068	7269	102	1693	3	0
1989	19479	10271	9208	7387	100	1717	3	0
1990	19804	10415	9388	7511	102	1771	3	0
1991	19974	10477	9497	7626	97	1769	3	0
1992	20249	10593	9655	7756	97	1798	3	0
1993	20436	10651	9784	7888	97	1794	3	0
1994	20591	10697	9893	8026	98	1765	3	0
1995	20871	10821	10049	8166	97	1782	3	0
2000	21890	11196	10694	8899	83	1708	3	0
2005	22096	11164	10931	9741	24	1164	3	0
2010	23282	11705	11377	10697	16	861	3	0
2015	23638	11840	11798	11494	0	301	3	0

Source: Mountain West Research-North, Inc., 1982.

Notes: Details may not sum due to rounding. "Basic project O&M" and "Indirect Basic" represent direct and indirect basic coal mining employment, respectively. No mines are assumed to operate in 2015.

TABLE 6.3.1.2-1

KME Scenario Forecast  
Population Change  
Study Region

Year	Total Population	Births	Deaths	Employment- Related Migration	Non-employment Related Migration	Total Change
1980	37220	0	0	0	0	0
1981	38523	728	331	1028	-122	1303
1982	38780	750	337	-11	-143	257
1983	39005	743	337	-35	-145	225
1984	39223	719	337	-19	-143	218
1985	40384	706	334	925	-135	1161
1986	41609	703	337	991	-132	1224
1987	42346	708	342	508	-136	737
1988	42633	706	350	72	-141	287
1989	42994	692	354	164	-142	360
1990	43562	671	356	396	-143	568
1991	43723	661	361	5	-143	161
1992	44131	652	361	254	-136	408
1993	44380	654	363	99	-140	249
1994	44544	645	370	33	-142	164
1995	44885	639	372	220	-146	341
2000	45837	645	394	201	-154	298
2005	45961	655	399	120	-147	235
2010	48261	677	434	471	-133	581
2015	49350	711	447	-63	-134	67

Source: Mountain West Research-North, Inc., 1982.

Notes: Details may not sum due to rounding. All values except total population represent annual changes.



TABLE 6.3.1.3-1

KME Scenario Forecast  
Personal Income  
Study Region  
(1980 \$ 000)

Year	Total Labor Income	FICA Payments Payments	Non-labor Income	Residency Adjustment	Total Personal Income	Personal Income Per Capita (1980 \$)
1980	245959	13248	124585	7	357303	9600
1981	239400	12972	123463	7	349898	NC
1982	233372	12626	122731	7	343485	NC
1983	229537	12435	122560	7	339669	NC
1984	237741	12797	124016	7	348968	NC
1985	251541	13497	126329	7	364380	NC
1986	263022	14042	128466	7	377453	NC
1987	271064	14477	130289	7	386883	NC
1988	274388	14679	131203	7	390919	NC
1989	277672	14849	131789	7	394619	NC
1990	283125	15194	132941	7	400880	9203
1991	285034	15304	133427	7	403163	NC
1992	289623	15608	134055	7	408077	NC
1993	291793	15728	134124	7	410197	NC
1994	293175	15818	134320	7	411685	NC
1995	298072	16110	135280	7	417249	NC
2000	308498	16716	139489	7	431279	9409
2005	307632	16817	148385	7	439202	NC
2010	318705	17501	161333	7	462558	9585
2015	324049	17945	173265	7	479370	9714

Source: Mountain West Research-North, Inc., 1982.

Notes: Details may not sum due to rounding. The personal and per capita figures do not include Crow dividends from royalties and a possible Crow severance tax. NC = not calculated.



Table 6.3.2.1 - 1  
KME Scenario Forecast  
Total Employment by Sector  
by Place of Residence  
Big Horn County

Year	As Proprietors	As Labor	As Mining	Con struction	Manu facturing	TCPU	Trade	FIRE	Ser vices	Gov ernment	Other recom.	Total
1980	508	421	239	225	49	125	665	131	1049	996	75	4484
1981	508	421	225	245	48	125	662	130	1062	1000	75	4506
1982	508	421	183	252	47	126	652	128	1059	994	75	4449
1983	508	421	176	246	47	128	651	127	1063	996	75	4442
1984	508	421	179	220	47	130	651	127	1068	999	75	4430
1985	508	421	184	221	48	134	662	129	1086	1013	75	4484
1986	507	421	188	251	49	137	679	132	1106	1036	75	4586
1987	507	421	241	212	49	138	682	134	1142	1055	75	4600
1988	506	421	290	201	50	140	695	136	1170	1079	75	476
1989	506	421	291	203	51	140	698	136	1196	1097	75	4817
1990	505	421	332	207	52	143	715	139	1235	1126	75	4953
1991	505	421	332	209	52	145	720	140	1263	1145	75	5010
1992	504	421	366	213	53	147	734	142	1303	1173	75	5135
1993	504	421	366	215	53	147	737	143	1332	1192	75	5188
1994	503	421	366	215	53	148	742	144	1362	1212	75	5245
1995	503	421	366	219	54	150	750	145	1403	1237	75	532
2000	499	421	364	225	55	154	777	149	1576	1351	75	5650
2005	494	421	352	233	57	159	809	154	1766	1479	75	6004
2010	487	421	324	241	58	164	848	160	1987	1631	75	6397
2015	484	421	314	252	63	171	891	168	2202	1774	75	6816

Source: Mountain West Research - North, Inc., December, 1982

Note: Details may not sum due to rounding.

Table 6.3.2.1 - 2  
KME Scenario Forecast  
Employment by Type  
Bis Horn County

Year	Total	Non Basic	Basic Non Project	Indirect Basic	Basic Project O&M	Project Construc- tion-Ferm	Project Construc- tion-NLoc.
1980	4484	2204	2280	2017	0	227	35
1981	4506	2211	2295	2028	0	215	51
1982	4449	2171	2277	2039	0	175	62
1983	4442	2163	2278	2050	0	170	57
1984	4430	2158	2272	2063	0	176	32
1985	4484	2198	2286	2076	0	181	26
1986	4586	2230	2356	2109	0	186	53
1987	4660	2257	2403	2147	0	239	15
1988	4767	2293	2474	2183	0	287	3
1989	4817	2304	2513	2220	0	288	3
1990	4953	2359	2594	2261	0	328	3
1991	5010	2374	2635	2303	0	328	3
1992	5135	2424	2711	2344	0	362	3
1993	5188	2435	2752	2386	0	362	3
1994	5245	2449	2796	2430	0	362	3
1995	5327	2483	2844	2477	0	362	3
2000	5650	2560	3090	2725	0	361	3
2005	6004	2648	3354	3010	0	341	3
2010	6412	2772	3640	3326	0	311	3
2015	6835	2942	3893	3589	0	301	3

Source: Mountain West Research - North, Inc., December, 1982

Note: Details may not sum due to rounding.

Table 8.3.2.1 - 3  
hME Scenario Forecast  
Population Change  
Big Horn County

Year	Total Population	Births	Deaths	Employment- Related Migration	Non-employment Related Migration	Total Change
1980	12180	0	0	0	0	0
1981	12325	293	120	2	-28	145
1982	12421	291	124	-44	-27	96
1983	12536	298	124	-35	-24	114
1984	12658	287	125	-19	-23	118
1985	12801	288	123	6	-24	145
1986	12942	282	124	8	-25	141
1987	13087	283	126	-6	-26	124
1988	13228	279	132	37	-26	158
1989	13364	280	134	18	-26	158
1990	13642	272	135	167	-25	179
1991	13756	271	138	2	-22	112
1992	13974	272	139	106	-21	215
1993	14089	275	138	3	-24	114
1994	14225	271	143	33	-23	137
1995	14368	277	144	33	-24	141
2000	15027	290	158	34	-26	139
2005	15719	293	165	41	-25	145
2010	16628	302	175	69	-25	204
2015	17842	338	189	68	-25	242

Source: Mountain West Research - North, Inc., December, 1989

Notes: Details may not sum due to rounding.

All values except total population represent annual changes.

population of 17,842 people represents a 46 percent increase over the 1980 population and implies an average annual growth rate of 1.1 percent.

As shown in Table 6.3.2.1-4, total personal in constant 1980 dollars income under the KME scenario is forecast to increase steadily from \$78 million in 1980 to \$120 million in 2015, a 53 percent increase. However, commensurate population increases keep per capita personal income from increasing at a similar rate. In fact, per capita personal income is actually forecast to decrease from \$6,464 in 1980 to \$6,409 by 1990. It is then forecast to increase to \$6,653 by 2000 and \$6,775 by 2010.

#### 6.3.2.2 Subcounty Area Population Forecasts

The KME Mine population forecasts for the Crow Reservation, Northern Cheyenne Reservation, and Crow-Indian population of the city of Hardin are identical to the baseline forecasts for these areas and are not presented again here (see tables 4.5.2.2-1 and 4.5.2.2-2 for the Crow Reservation baseline population forecasts, Table 4.6.2-1 for the Northern Cheyenne Reservation baseline population forecasts, and Table 4.4.3.2-1 for the Hardin (Crow) baseline forecasts). This section focuses on the KME population forecasts for the Hardin, Hardin area, and Decker/Spring Creek subcounty areas where the with-project population forecasts differ from the baseline population forecasts.

As shown in Table 6.3.2.2-1, the non-Indian population in Hardin is forecast to increase from 2,632 people in 1980 to 2,813 people in 1990, an increase of 7 percent during the period when the KME Mine construction and operations work forces reach their peaks. The Hardin area (excluding the city) is forecast to increase from 978 persons in 1980 to 990 persons in 1990, an increase of only 1 percent. Although the Decker area population is forecast to decline from 205 persons in 1980 to 196 persons in 1990, it would grow to 207 persons in 1990 under the KME scenario.

After 1990, the non-Indian population of Hardin and the population of the Hardin area are forecast to increase steadily. By 2015, the non-Indian population of Hardin is forecast to be 3,404 persons, an increase of 29 percent over the 1980 population. The Hardin area (excluding the city) is forecast to grow to 1,159 persons in 2015, a 19 percent increase over its 1980 population. Over this period, the total population of Hardin is forecast to increase from 3,215 persons in 1980 to 4,407 persons in 2015, an increase of 37.1 percent. Between 1990 and 2015, the Decker area population is forecast to fluctuate between 200 and 220 people.

#### 6.3.3 Sheridan County and Communities

This section presents the level of economic/demographic activity resulting from the KME mine for Sheridan County and its subcounty areas. Section 6.3.3.1 discusses employment, population, and income levels for Sheridan County. Section 6.3.3.2 presents population levels for subcounty areas.

##### 6.3.3.1 Sheridan County

As shown in Table 6.3.3.1-1, Sheridan County's employment under the KME scenario is forecast to rise from 12,510 persons in 1982 to 14,778 persons in 1990, an 18 percent increase over the eight-year period during which the KME construction and operations work forces reach their peaks. After 1990, total employment is forecast to increase more slowly, growing by 9 percent between 1990 and 2000 and by 4 percent between 2000 and 2010. The total employment in 2015 of 16,803 persons represents a 30 percent increase over total employment in 1980.

Table 6.3.2.1 - 4  
KME Scenario Forecast  
Personal Income  
Big Horn County  
(Thousands of 1980 Dollars)

Year	Total Labor Income	FICA Payments	Non-labor Income	Residency Adjustment	Total Personal Income	Personal Income Per Capita (1980 \$)
1980	62924	4905	20703	5	78728	6464
1981	63637	4961	20967	5	79649	NC
1982	61444	4790	20712	5	77372	NC
1983	60940	4750	20763	5	76957	NC
1984	60578	4722	20747	5	76608	NC
1985	62757	4892	21056	5	78926	NC
1986	63443	4945	21171	5	79674	NC
1987	65356	5110	21542	5	81994	NC
1988	67108	5231	21741	5	83624	NC
1989	67749	5281	21834	5	84308	NC
1990	70718	5513	22217	5	87428	6409
1991	71442	5569	22426	5	88305	NC
1992	74343	5795	22733	5	91286	NC
1993	74995	5846	22831	5	91985	NC
1994	75830	5911	22977	5	92901	NC
1995	77975	6078	23446	5	95348	NC
2000	81991	6391	24369	5	99975	6653
2005	86216	6720	25870	5	105364	NC
2010	91674	7148	28127	5	112656	6775
2015	97902	7433	30115	5	120384	6747

Source: Mountain West Research - North, Inc., December, 1982

Notes: Details may not sum due to rounding

The personal and per capita figures do not include Crow dividends from royalties and a possible Crow severance tax.

NC means not calculated.

TABLE 6.3.2.2-1

KME Scenario Population Forecast  
Big Horn County Allocation Areas

Year	City of Hardin (total)	City of Hardin (non-Indian)	Hardin Area (excluding city)	Decker/Spring Creek Area
1980	3,215	2,632	978	205
1981	3,242	2,646	977	207
1982	3,245	2,637	969	203
1983	3,256	2,635	962	196
1984	3,270	2,638	958	197
1985	3,300	2,656	956	201
1986	3,326	2,671	955	208
1987	3,345	2,679	954	199
1988	3,382	2,704	959	199
1989	3,409	2,720	961	199
1990	3,512	2,813	990	207
1991	3,529	2,821	988	206
1992	3,607	2,889	1,007	210
1993	3,627	2,899	1,006	210
1994	3,663	2,925	1,011	210
1995	3,697	2,949	1,016	210
1996	3,725	2,966	1,019	210
1997	3,745	2,976	1,018	210
1998	3,769	2,990	1,019	209
1999	3,800	3,010	1,023	209
2000	3,830	3,029	1,027	209
2005	3,974	3,110	1,060	201
2010	4,168	3,249	1,106	207
2015	4,407	3,404	1,159	217

Source: Mountain West Research-North, Inc., 1983.

Note: Details may not sum due to rounding.



TABLE 6.3.3.1-1

KME Scenario Forecast  
Total Employment by Sector by Place of Residence  
Sheridan County

Year	Ag Propri etors	Ag Labor	Mining	Con struc tion	Manu factu ring	TCPU	Trade	FIRE	Ser vices	Gov ern ment	Other +com.	Total
1980	509	440	1151	1612	523	503	2814	500	2314	2464	104	12934
1981	509	440	1159	1347	519	510	2802	495	2311	2420	104	12618
1982	509	440	1044	1330	518	536	2809	493	2322	2403	104	12510
1983	509	440	943	1317	519	543	2824	491	2338	2393	104	12425
1984	509	440	1077	1319	537	596	2913	499	2402	2471	104	12869
1985	509	440	1209	1331	553	613	2996	507	2464	2543	104	13272
1986	508	440	1273	1362	568	639	3073	513	2520	2603	104	13605
1987	507	440	1304	1450	584	653	3159	520	2584	2674	104	13983
1988	506	440	1395	1518	608	673	3272	530	2666	2772	104	14488
1989	505	440	1447	1382	614	692	3307	531	2699	2786	104	14510
1990	504	440	1473	1379	630	728	3386	536	2757	2839	104	14778
1991	503	440	1472	1383	636	747	3433	539	2801	2870	104	14931
1992	502	440	1469	1387	645	753	3486	542	2847	2903	104	15080
1993	501	440	1466	1390	652	759	3535	544	2891	2929	104	15214
1994	500	440	1439	1392	658	765	3581	546	2933	2950	104	15311
1995	499	440	1457	1398	668	772	3642	550	2986	2991	104	15510
2000	494	440	1393	1418	705	768	3923	564	3242	3150	104	16204
2005	489	440	995	1374	715	711	4066	537	3430	3206	104	16090
2010	484	329	731	1435	744	731	4437	582	3779	3394	104	16870
2015	479	439	181	1431	748	740	4644	586	3984	3452	104	16803

Source: Mountain West Research-North, Inc., 1982.

Note: Details may not sum due to rounding.



As Table 6.3.3.1-2 shows, both basic and nonbasic employment are forecast to exhibit the same growth patterns as total employment. However, the ratio of nonbasic employment to basic employment is forecast to decline from 126 to 100 in 1980 to 120 to 100 in 1990 after KME operations employment has peaked. This decline continues through 2015, when the nonbasic/basic employment ratio is forecast to be 113 to 100. The general declining trend in this ratio is due to assumed productivity increases in nonbasic sectors and to the lower average wage in the basic sectors as mining and construction decline as a percentage of total employment.

The population projections for the KME scenario exhibit the same pattern as the employment forecast. As shown in Table 6.3.3.1-3, population is forecast to grow by 19 percent during the 1980s, by 3 percent during the 1990s, and by 3 percent during the first decade of the 2000s. The 2015 population of 31,507 people represents a 26 percent increase over the 1980 population and implies an average annual growth rate of 0.7 percent.

As shown in Table 6.3.3.1-4, total personal income in constant 1980 dollars under the KME scenario is forecast to increase from \$279 million in 1980 to \$359 million in 2015, a 29 percent increase. However, population increases keep per capita personal income from increasing at a similar rate. Per capita personal income is forecast to decrease from \$11,125 in 1980 to \$10,389 by 1990. It is then forecast to increase to \$10,659 by 2000 and \$11,061 by 2010.

#### 6.3.3.2 Subcounty area population forecasts

As shown in Table 6.3.3.2-1, all of Sheridan County's subareas are forecast to experience steady population growth during the 1980s under the KME scenario. The city of Sheridan is forecast to grow from 15,139 people in 1980 to 18,098 people in 1990, a 20 percent increase over the period during which the KME construction and operations work forces reach their peaks. The greater Sheridan area is forecast to rise from 5,016 people in 1980 to 6,177 people in 1990, a 23 percent increase. The Ranchester-Dayton area population is forecast to rise from 1,841 people in 1980 to 2,203 people in 1990, a 20 percent increase. And finally, the rest of Sheridan County is forecast to grow from 3,042 people in 1980 to 3,440 people in 1990, a 13 percent increase.

After 1990, the populations of all Sheridan County subcounty areas are forecast to grow more slowly. The city of Sheridan is forecast to grow by 3 percent during the 1990s and by 3 percent during the first decade of the 2000s. The city of Sheridan's population in 2015 of 19,219 people would be 27 percent above the actual 1980 population. The greater Sheridan area is forecast to grow by 3 percent during the 1990s and then to stabilize at about 6,300 people through most of the period through 2015. Its 2015 population of 6,301 people represents a 26 percent increase over the actual 1980 population. The Ranchester-Dayton area's population is forecast to grow by 4 percent during the 1990s and then to stabilize at about 2,200 people through most of the period through 2015, when the forecast population of 2,206 people would be 20 percent above the 1980 population. The rest of Sheridan County is forecast to remain stable at about 3,400 people during the 1990s and then to rise to 3,781 people in 2015, a 24 percent increase over the 1980 population.

### 6.4 Consol Mine Forecast

This section describes the economic/demographic forecasts for the scenario that includes the Consol levels 1 and 2 mines as the only proposed actions. The section presents the total level of population, employment, and income that would occur under the scenario. Section 6.4.1 presents a regional overview, and sections 6.4.2 and 6.4.3 present forecasts for Big Horn and Sheridan counties.

TABLE 6.3.3.1-2

KME Scenario Forecast  
Employment by Type  
Sheridan County

Year	Total	Non Basic	Basic Total	Basic Non Project	Indirect Basic	Basic Project O&M	Project Construc- tion-Perm	Project Construc- tion-NLoc.
1980	12934	7208	5725	4297	51	1014	92	268
1981	12618	7061	5557	4465	53	1022	4	12
1982	12510	6981	5528	4567	55	905	0	0
1983	12425	6925	5499	4637	58	803	0	0
1984	12869	7125	5744	4737	71	935	0	0
1985	13272	7312	5959	4815	78	1066	0	0
1986	13605	7457	6148	4904	92	1129	6	15
1987	13983	7647	6335	4981	98	1159	28	68
1988	14488	7923	6565	5061	109	1248	42	103
1989	14510	7933	6577	5157	108	1299	3	8
1990	14778	8068	6709	5265	121	1322	0	0
1991	14931	8129	6801	5364	116	1320	0	0
1992	15080	8196	6884	5452	115	1315	0	0
1993	15214	8242	6971	5543	116	1311	0	0
1994	15311	8274	7037	5637	116	1283	0	0
1995	15510	8364	7146	5730	115	1300	0	0
2000	16204	8660	7544	6215	102	1227	0	0
2005	16090	8514	7505	6796	24	821	0	0
2010	16870	8933	7937	7371	16	550	0	0
2015	16803	8898	7905	7905	0	0	0	0

Source: Mountain West Research-North, Inc., 1982.

Notes: Details may not sum due to rounding. "Basic project O&M" and "Indirect Basic" represent direct and indirect basic coal mining employment, respectively. No mines are assumed to operate in 2015.

TABLE 6.3.3.1-3

KME Scenario Forecast  
Population Change  
Sheridan County

Year	Total Population	Births	Deaths	Employment- Related Migration	Non-employment Related Migration	Total Change
1980	25040	0	0	0	0	0
1981	26196	435	210	1026	-93	1157
1982	26357	458	213	33	-116	161
1983	26467	445	212	0	-121	110
1984	26566	432	212	0	-119	99
1985	27581	418	210	918	-111	1014
1986	27665	421	213	983	-106	1083
1987	29278	424	216	515	-110	612
1988	29406	426	217	34	-115	1128
1989	29627	412	219	145	-116	221
1990	29918	396	220	229	-118	290
1991	29966	389	222	3	-121	49
1992	30156	379	222	147	-115	188
1993	30290	379	224	95	-115	134
1994	30316	373	227	0	-119	27
1995	30526	362	227	187	-122	199
2000	30808	355	235	167	-127	159
2005	30242	359	234	129	-122	133
2010	31633	375	259	402	-108	409
2015	31507	373	258	-132	-109	-126

Source: Mountain West Research-North, Inc., 1982.

Notes: Details may not sum due to rounding. All values except total population represent annual changes.

TABLE 6.3.3.1-4

KME Scenario Forecast  
 Personal Income  
 Sheridan County  
 (1980 \$ 000)

Year	Total Labor Income	FICA Payments Payments	Non-labor Income	Residency Adjustment	Total Personal Income	Personal Income Per Capita (1980 \$)
1980	183035	8342	103881	1	278575	11125
1981	175762	8011	102496	1	270249	10316
1982	171928	7836	102019	1	266112	10095
1983	168597	7684	101797	1	262711	9925
1984	177163	8075	103268	1	272359	10251
1985	184649	8416	104592	1	280827	10345
1986	190489	8682	105759	1	287568	10352
1987	196683	8964	107200	1	294920	10380
1988	205498	9366	108999	1	305134	10366
1989	205292	9357	109072	1	305010	10405
1990	209020	9527	110020	1	309516	10389
1991	210892	9612	110411	1	311693	10420
1992	212592	9689	110726	1	313630	10418
1993	214104	9758	110676	1	315023	10416
1994	214643	9783	110700	1	315562	10424
1995	217390	9908	111179	1	318663	10456
2000	223784	10200	114416	1	328002	10659
2005	221419	10096	122514	1	333836	26293
2010	227048	10352	133206	1	349902	11061
2015	226147	10311	143150	1	358986	11320

Source: Mountain West Research-North, Inc., 1982.

Note: Details may not sum due to rounding.

TABLE 6.3.3.2-1

KME Scenario Population Forecast  
Sheridan County Allocation Areas

Year	Sheridan County	Sheridan City	Greater Sheridan Area <sup>a</sup>	Ranchester/ Dayton Area	Rest of County
1980	25,040	15,139	5,016	1,841	3,042
1981	26,196	15,709	5,295	1,893	3,299
1982	26,357	15,795	5,339	1,906	3,317
1983	26,467	15,853	5,370	1,919	3,325
1984	26,566	15,903	5,397	1,933	3,333
1985	27,581	16,606	5,604	2,011	3,360
1986	28,665	17,339	5,863	2,082	3,381
1987	29,278	17,670	6,055	2,146	3,407
1988	29,406	17,750	6,079	2,160	3,417
1989	29,627	17,889	6,133	2,179	3,426
1990	29,918	18,098	6,177	2,203	3,440
1991	29,966	18,126	6,191	2,212	3,437
1992	30,156	18,256	6,229	2,226	3,445
1993	30,290	18,348	6,257	2,236	3,449
1994	30,316	18,364	6,265	2,243	3,444
1995	30,526	18,504	6,306	2,258	3,448
1996	30,601	18,569	6,322	2,265	3,445
1997	30,622	18,576	6,332	2,273	3,441
1998	30,616	18,569	6,334	2,278	3,435
1999	30,648	18,597	6,339	2,282	3,430
2000	30,808	18,721	6,363	2,289	3,435
2005	30,242	18,416	6,141	2,142	3,542
2010	31,633	19,296	6,327	2,214	3,796
2015	31,507	19,219	6,301	2,206	3,781

Source: Mountain West Research-North, Inc., 1983.

Note: Details may not sum due to rounding.

<sup>a</sup>Excluding the city of Sheridan



#### 6.4.1 Regional Overview

As discussed in Chapter 5 and displayed in Table 5.5-1, construction of the Consol Level 1 Mine would begin in 1985 and end and peak in 1987 at 213 workers. The operations period would begin in 1986 and peak at 604 workers in the years 1989 through 1995. Operations period employment at the mine would begin to decline in 1996 and end in 1998.

The Consol Level 2 scenario includes the employment presented above for Level 1, but would add a two-year construction period in 1997 and 1998, when 126 and 213 workers would be employed, respectively. Under the Level 2 scenario, operations employment would rise from the Level 1 peak of 604 workers in 1995 to a Level 2 peak of 938 workers in the years 1999 through 2010. By 2015, operations employment would decline to 494 workers.

##### 6.4.1.1 Regional Employment

As shown in Table 6.4.1.1-1, regional employment under the Consol Level 1 scenario is forecast to rise from 16,959 persons in 1982 to 20,598 persons in 1990, a 21 percent increase over the eight-year period during which the Consol Level 1 construction and operations work forces reach their peaks. After 1990, total employment is forecast to increase more slowly, growing by 3 percent between 1990 and 2000 and by 9 percent between 2000 and 2010. Total employment of 23,685 persons in 2015 represents a 36 percent increase over total employment in 1980.

Both basic and nonbasic employment are forecast to exhibit the same growth patterns as total employment (See Table 6.4.1.1-2). The ratio of nonbasic employment to basic employment is forecast to decline from 118 to 100 in 1980 to 110 to 100 in 1990 during Consol Level 1 peak operations employment. This decline continues through 2015, when the nonbasic/basic employment ratio is forecast to be 101 to 100.

The Consol Level 2 employment forecasts are similar to those of Consol Level 1 through 1995 but exceed Consol Level 1 after 1995 as Level 2 construction and operating work forces build to their respective peaks (see Table 6.4.1.1-3). Under the Consol Level 2 scenario, total employment is forecast to increase by 14 percent between 1990 and 2000 and by 9 percent between 2000 and 2010. Total 2015 employment of 24,725 persons represents a 42 percent increase over total employment in 1980.

As shown in Table 6.4.1.1-4, both basic and nonbasic employment under the Consol Level 2 scenario are forecast to exhibit the same growth patterns as total employment. The ratio of nonbasic to basic employment continues to decline as it is forecast to do under the Consol Level 1 scenario, from 110 to 100 in 1990 to 101 to 100 in 2015.

##### 6.4.1.2 Regional Population

The population projections for the Consol Level 1 scenario exhibit the same pattern as the employment forecast. As shown in Table 6.4.1.2-1, regional population is forecast to grow by 21 percent during the 1980s, by 2 percent during the 1990s, and by 4 percent during the first decade of the 2000s. The population of 49,322 people in 2015 represents a 33 percent increase over the 1980 population and implies an average annual growth rate of 0.8 percent.

The population projections for the Consol Level 2 scenario exhibit the same pattern as the employment forecast for the Level 2 scenario. As shown in Table 6.4.1.2-2, regional population is forecast to grow by 17 percent during the 1980s, by 9 percent during the 1990s, and by 7 percent during the first decade of the 2000s. The population of 51,443 people in 2015 represents a 38 percent increase over the 1980 population and implies an average annual growth rate of 0.9 percent.

TABLE 6.4.1.1-1

Consol Level 1 Scenario Forecast  
Total Employment by Sector  
Study Region

Year	Ag Propri etors	Ag Labor	Mining	Con struc tion	Manu factu ring	TCPU	Trade	FIRE	Ser vices	Gov ern ment	Other +com.	Total
1980	1017	861	1390	1837	572	628	3479	631	3363	3460	179	17418
1981	1017	861	1385	1593	567	635	3464	625	3374	3421	179	17125
1982	1017	861	1228	1582	566	662	3461	621	3381	3397	179	16959
1983	1017	861	1119	1563	567	672	3475	619	3402	3390	179	16867
1984	1017	861	1257	1540	585	726	3564	627	3470	3470	179	17300
1985	1017	861	1394	1536	601	746	3653	635	3548	3553	179	17726
1986	1015	861	1660	1680	633	791	3821	653	3672	3723	179	18692
1987	1014	861	1966	1802	666	849	3998	675	3827	3914	179	19755
1988	1012	861	2116	1587	671	870	4037	678	3887	3949	179	19849
1989	1011	861	2207	1598	687	908	4124	685	3974	4033	179	20270
1990	1009	861	2264	1609	698	919	4200	692	4062	4102	179	20598
1991	1008	861	2263	1613	705	914	4249	695	4132	4148	179	20770
1992	1006	861	2294	1623	714	922	4316	700	4218	4210	179	21047
1993	1005	861	2291	1627	722	929	4369	703	4291	4256	179	21236
1994	1003	861	2264	1630	728	935	4421	707	4365	4298	179	21394
1995	1002	861	2282	1640	739	944	4491	712	4459	4366	179	21677
2000	993	861	1613	1624	736	838	4599	703	4760	4414	179	21324
2005	983	861	1154	1507	764	860	4831	704	5068	4631	179	21730
2010	971	860	1055	1678	804	899	5296	744	5772	5038	179	23320
2015	963	860	459	1686	824	915	5552	768	6197	5242	179	23685

Source: Mountain West Research-North, Inc., 1982.

Note: Details may not sum due to rounding.



TABLE 6.4.1.1-2

Consol Level 1 Scenario Forecast  
Employment by Type  
Study Region

Year	Total	Non Basic	Basic Total	Basic Non Project	Indirect Basic	Basic Project O&M	Project Construc- tion-Perm	Project Construc- tion-NLoc.
1980	17418	9412	8005	6315	51	1242	127	268
1981	17125	9272	7852	6494	53	1237	55	12
1982	16959	9153	7806	6607	55	1081	62	0
1983	16867	9088	7778	6688	58	973	57	0
1984	17300	9284	8015	6800	71	1111	32	0
1985	17726	9494	8232	6891	78	1248	9	5
1986	18692	9929	8763	7014	105	1513	51	78
1987	19755	10445	9310	7154	120	1818	84	132
1988	19849	10484	9365	7285	110	1966	3	0
1989	20270	10662	9607	7428	119	2056	3	0
1990	20598	10810	9787	7552	121	2110	3	0
1991	20770	10874	9896	7667	116	2108	3	0
1992	21047	10992	10054	7797	116	2137	3	0
1993	21236	11053	10183	7929	116	2133	3	0
1994	21394	11101	10292	8067	117	2104	3	0
1995	21677	11228	10448	8207	116	2121	3	0
2000	21324	10931	10393	8874	72	1443	3	0
2005	24730	10993	18736	9741	41	1447	3	0
2010	23320	11743	11577	10697	16	861	3	0
2015	23686	11888	11798	11494	0	301	3	0

Source: Mountain West Research-North, Inc., 1982.

Note: Details may not sum due to rounding.

TABLE 6.4.1.1-3

Consol Level 2 Scenario Forecast  
Total Employment by Sector  
Study Region

Year	Ag Propri etors	Ag Labor	Mining	Con struc tion	Manu factu ring	TCPU	Trade	FIRE	Ser vices	Gov ern ment	Other +com.	Total
1980	1017	861	1390	1837	572	628	3479	631	3363	3460	179	17418
1981	1017	861	1385	1593	567	635	3464	625	3374	3421	179	17125
1982	1017	861	1228	1582	566	662	3461	621	3381	3397	179	16959
1983	1017	861	1119	1563	567	672	3475	619	3402	3390	179	16867
1984	1017	861	1257	1540	585	726	3564	627	3470	3470	179	17300
1985	1017	861	1394	1536	601	746	3653	635	3548	3553	179	17726
1986	1015	861	1660	1680	633	791	3821	653	3672	3723	179	18692
1987	1014	861	1966	1802	666	849	3998	675	3827	3914	179	19755
1988	1012	861	2116	1587	671	870	4037	678	3887	3949	179	19849
1989	1011	861	2207	1598	687	908	4124	685	3974	4033	179	20270
1990	1009	861	2264	1609	698	919	4200	692	4062	4102	179	20598
1991	1008	861	2263	1613	705	914	4249	695	4132	4148	179	20770
1992	1006	861	2294	1623	714	922	4316	700	4218	4210	179	21047
1993	1005	861	2291	1627	722	929	4369	703	4291	4256	179	21236
1994	1003	861	2264	1630	728	935	4421	707	4365	4298	179	21394
1995	1002	861	2282	1640	739	944	4491	712	4459	4366	179	21677
2000	993	861	2551	1691	807	1038	4931	745	4969	4779	179	23547
2005	983	861	2092	1665	836	1062	5170	747	5281	5005	179	23981
2010	971	860	1991	1752	878	1101	5642	788	5992	5423	179	25605
2015	963	860	989	1716	853	981	5692	785	6213	5406	179	24725

Source: Mountain West Research-North, Inc., 1982.

Note: Details may not sum due to rounding.

TABLE 6.4.1.1-4

Consol Level 2 Scenario Forecast  
Employment by Type  
Study Region

Year	Total	Non Basic	Basic Total	Basic Non Project	Indirect Basic	Basic Project O&M	Project Construc- tion-Perm	Project Construc- tion-NLoc.
1980	17418	9412	8005	6315	51	1242	127	268
1981	17125	9272	7852	6494	53	1237	55	12
1982	16959	9153	7806	6607	55	1081	62	0
1983	16867	9088	7778	6686	58	973	57	0
1984	17300	9284	8015	6800	71	1111	32	0
1985	17726	9494	8232	6891	78	1248	9	5
1986	18692	9929	8763	7014	105	1513	51	78
1987	19755	10445	9310	7154	120	1818	84	132
1988	19849	10484	9365	7285	110	1966	3	0
1989	20270	10662	9607	7428	119	2056	3	0
1990	20598	10810	9787	7552	121	2110	3	0
1991	20770	10874	9896	7667	116	2108	3	0
1992	21047	10992	10054	7797	116	2137	3	0
1993	21236	11053	10183	7929	116	2133	3	0
1994	21394	11101	10292	8067	117	2104	3	0
1995	21677	11228	10448	8207	116	2121	3	0
2000	23547	12022	11525	9007	132	2381	3	0
2005	23981	12116	11867	9874	84	1907	3	0
2010	25605	12897	12708	10830	76	1799	3	0
2015	24725	12364	12361	11531	32	795	3	0

Source: Mountain West Research-North, Inc., 1982.

Notes: Details may not sum due to rounding. "Basic project O&M" and "Indirect Basic" represent direct and indirect basic coal mining employment, respectively. No mines are assumed to operate in 2015.

TABLE 6.4.1.2-1

Consol Level 1 Scenario Forecast  
Population Change  
Study Region

Year	Total Population	Births	Deaths	Employment- Related Migration	Non-employment Related Migration	Total Change
1980	37220	0	0	0	0	0
1981	38523	728	331	1028	-122	1303
1982	38780	750	337	-11	-143	257
1983	39005	743	337	-35	-145	225
1984	39223	719	337	-19	-143	218
1985	39969	706	334	510	-135	746
1986	41981	696	337	1783	-131	2011
1987	43806	718	343	1587	-137	1825
1988	43850	732	353	-191	-144	43
1989	44633	717	356	568	-145	783
1990	45153	704	360	323	-146	520
1991	45334	690	364	2	-146	180
1992	45727	680	366	219	-140	393
1993	45975	679	368	79	-143	247
1994	46155	669	375	32	-146	180
1995	46472	663	377	181	-150	317
2000	46239	634	399	2	-157	80
2005	45060	616	402	222	-146	297
2010	48173	666	444	33	0	12
2015	49322	707	450	19	0	12

Source: Mountain West Research-North, Inc., 1982.

Notes: Details may not sum due to rounding. All values except total population represent annual changes.

TABLE 6.4.1.2-2

Consol Level 2 Scenario Forecast  
Population Change  
Study Region

Year	Total Population	Births	Deaths	Employment- Related Migration	Non-employment Related Migration	Total Change
1980	37220	0	0	0	0	0
1981	38523	728	331	1028	-122	1303
1982	38780	750	337	-11	-143	257
1983	39005	743	337	-35	-145	225
1984	39223	719	337	-19	-143	218
1985	39969	706	334	510	-135	746
1986	41981	696	337	1783	-131	2011
1987	43806	718	343	1587	-137	1825
1988	43850	732	353	-191	-144	43
1989	44633	717	356	568	-145	783
1990	45153	704	360	323	-146	520
1991	45334	690	364	2	-146	180
1992	45727	680	366	219	-140	393
1993	45975	679	368	79	-143	247
1994	46155	669	375	32	-146	180
1995	46472	663	377	181	-150	317
2000	49043	698	404	95	-162	226
2005	49568	700	414	337	-154	476
2010	52699	730	458	-3	-9	16
2015	51443	735	459	-1174	-9	-1114

Source: Mountain West Research-North, Inc., 1982.

Notes: Details may not sum due to rounding. All values except total population represent annual changes. "Basic project O&M" and "Indirect Basic" represent direct and indirect basic coal mining employment, respectively. No mines are assumed to operate in 2015.



#### 6.4.1.3 Regional Income

As shown in Table 6.4.1.3-1, total personal income in constant 1980 dollars under the Consol Level 1 scenario is forecast to increase steadily from \$357 million in 1980 to \$482 million in 2015, a 35 percent increase. However, commensurate population increases keep per capita personal income from increasing at a similar rate. In fact, per capita personal income is actually forecast to decrease from \$9,600 in 1980 to \$9,318 by 1990. It is then forecast to increase to \$9,059 by 2000 and \$9,643 by 2010.

As shown in Table 6.4.1.3-2, total personal income under the Consol Level 2 scenario is forecast to increase steadily from \$357 million in 1980 to \$507 million in 2015, a 42 percent increase. However, commensurate population growth keeps per capita personal income from increasing at a similar rate. In fact, per capita personal income is forecast to decrease from \$9,600 in 1980 to \$9,318 by 1990. It is then forecast to increase to \$9,643 by 2000 and \$9,918 by 2010.

#### 6.4.2 Big Horn County, Reservations, and Communities

This section presents the level of economic/demographic activity resulting from the Consol Level 1 and Level 2 mines for Big Horn County and its subcounty areas. Section 6.4.2.1 discusses employment, population, and income levels for Big Horn County. Section 6.4.2.2 presents population levels for subcounty areas.

##### 6.4.2.1 Big Horn County

As shown in Table 6.4.2.1-1, Big Horn County's employment by place of residence under the Consol Level 1 scenario is forecast to rise from 4,449 persons in 1982 to 5,030 persons in 1990, a 13 percent increase over the eight year period during which the Consol Level 1 construction and operations work forces reach their peaks. After 1990, total employment is forecast to increase more slowly, growing by 11 percent between 1990 and 2000 and then by 14 percent between 2000 and 2010. Total 2015 employment of 6,816 persons represents a 52 percent increase over total employment in 1980.

As shown in Table 6.4.2.1-2, Big Horn County's employment under the Consol Level 2 scenario is forecast to rise from 4,449 persons in 1982 to 5,030 persons in 1990, and then to 5,804 persons in 2000 as the Consol Level 2 operations work force reaches its peak. After 2000, total employment is forecast to increase at about the same rate growing, to 6,612 by 2010. Total employment of 6,930 persons in 2015 represents a 54 percent increase over total employment in 1980.

Both basic and nonbasic employment are forecast to exhibit the same growth patterns as total employment (see Table 6.4.2.1-3). However, the ratio of nonbasic employment to basic employment is forecast to decline from 97 to 100 in 1980 to 91 to 100 in 1990 after Consol Level 1 operations employment has peaked. This decline would continue through 2015, when the nonbasic/basic employment ratio is forecast to be 76 to 100.

As Table 6.4.2.1-4 shows, both basic and nonbasic employment are forecast to exhibit the same growth patterns as total employment. However, the ratio of nonbasic employment to basic employment is forecast to decline from 97 to 100 in 1980 to 91 to 100 in 1990, and then to 83 to 100 after Consol Level 2 operations employment has peaked. This decline continues through 2015, when the nonbasic/basic employment ratio is forecast to be 76 to 100.

The population projections for the Consol 1 scenario exhibit the same pattern as the employment forecast. As shown in Table 6.4.2.1-5, Big Horn County population is forecast to grow by 13 percent during the 1980s, by 9 percent during the 1990s, and by 11 percent during the first decade of the 2000s.

TABLE 6.4.1.3-1

Consol Level 1 Scenario Forecast  
Personal Income  
Study Region  
(1980 \$000)

Year	Total Labor Income	FICA Payments Payments	Non-labor Income	Residency Adjustment	Total Personal Income	Personal Income Per Capita (1980 \$)
1980	245959	13248	124585	7	357303	9600
1981	239400	12972	123463	7	349898	NC
1982	233372	12626	122731	7	343485	NC
1983	229537	12435	122560	7	339669	NC
1984	237741	12797	124016	7	348968	NC
1985	246714	13245	125593	7	359069	NC
1986	265142	14120	128838	7	379867	NC
1987	287418	15289	132941	7	405077	NC
1988	287865	15342	133530	7	406061	NC
1989	295189	15707	134824	7	414313	NC
1990	300694	16054	136095	7	420743	9318
1991	302629	16166	136660	7	423131	NC
1992	307244	16470	137371	7	428153	NC
1993	309447	16591	137533	7	430396	NC
1994	310864	16683	137834	7	432023	NC
1995	315800	16977	138902	7	437731	NC
2000	295492	16076	138527	7	417950	9039
2005	298861	16383	148162	7	430637	NC
2010	319207	17523	162815	7	464519	9643
2015	324681	17973	175026	7	481734	9765

Source: Mountain West Research-North, Inc., 1982.

Notes: Details may not sum due to rounding. The personal and per capita figures do not include Crow dividends from royalties and a possible Crow severance tax. NC = not calculated.



TABLE 6.4.1.3-2

Consol Level 2 Scenario Forecast  
Personal Income  
Study Region  
(1980 \$ 000)

Year	Total Labor Income	FICA Payments	Non-labor Income	Residency Adjustment	Total Personal Income	Personal Income Per Capita (1980 \$)
1980	245959	13248	124585	7	357303	9600
1981	239400	12972	123463	7	349898	NC
1982	233372	12626	122731	7	343485	NC
1983	229537	12435	122560	7	339669	NC
1984	237741	12797	124016	7	348968	NC
1985	246714	13245	125593	7	359069	NC
1986	265142	14120	128838	7	379867	NC
1987	287418	15289	132941	7	405077	NC
1988	287865	15342	133530	7	406061	NC
1989	295189	15707	134824	7	414313	NC
1990	300694	16054	136095	7	420743	9318
1991	302629	16166	136660	7	423131	NC
1992	307244	16470	137371	7	428153	NC
1993	309447	16591	137533	7	430396	NC
1994	310864	16683	137834	7	432023	NC
1995	315800	16977	138902	7	437731	NC
2000	344536	18477	146835	7	472901	9643
2005	348305	18803	157474	7	486974	NC
2010	369173	19967	29850	7	522673	9918
2015	347780	19110	178083	7	506853	9852

Source: Mountain West Research-North, Inc., 1982.

Notes: Details may not sum due to rounding. The personal and per capita figures do not include Crow dividends from royalties and a possible Crow severance tax. NC = not calculated.

Table 6.4.2.1 - 1  
 Consol Level 1 Scenario Forecast  
 Total Employment by Sector  
 by Place of Residence  
 Big Horn County

Year	As Propri etors	As Labor	Minings	Con struc tion	Manu factu ring	TCPU	Trade	FIRE	Ser vices	Gov ern ment	Other +com.	Total
1980	508	421	239	225	49	125	665	131	1049	996	75	4484
1981	508	421	225	245	48	125	662	130	1062	1000	75	4506
1982	508	421	183	252	47	126	652	128	1059	994	75	4449
1983	508	421	176	246	47	128	651	127	1063	996	75	4442
1984	508	421	179	220	47	130	651	127	1068	999	75	4430
1985	508	421	184	198	47	132	655	128	1082	1007	75	4440
1986	507	421	211	216	49	136	672	131	1105	1031	75	4556
1987	507	421	266	238	50	140	695	136	1152	1067	75	4750
1988	506	421	322	204	51	141	703	137	1178	1087	75	4830
1989	506	421	331	205	51	142	709	138	1205	1107	75	4894
1990	505	421	372	210	53	145	726	141	1244	1136	75	5030
1991	505	421	372	211	53	146	730	142	1272	1155	75	5087
1992	504	421	406	216	54	149	745	144	1312	1184	75	5217
1993	504	421	406	217	54	149	748	145	1341	1202	75	5265
1994	503	421	405	218	54	149	753	146	1372	1222	75	5322
1995	503	421	405	222	55	151	760	147	1412	1247	75	5403
2000	499	421	333	223	55	152	769	147	1569	1343	75	5590
2005	494	421	303	231	57	158	804	153	1762	1475	75	5861
2010	487	421	324	241	58	164	848	160	1987	1631	75	6397
2015	484	421	314	252	63	171	891	168	2202	1774	75	6816

Source: Mountain West Research - North, Inc., December, 1982

Note: Details may not sum due to rounding.

Table 6.4.2.1 - 2  
 Consol Level 2 Scenario Forecast  
 Total Employment by Sector  
 by Place of Residence  
 Big Horn County

Year	As Propriators	As Labor	Con Minings	Manu struc tion	Manu factu rings	TCPU	Trade	FIRE	Ser vices	Gov ern ment	Other +com.	Total
1980	508	421	239	225	49	125	665	131	1049	996	75	4484
1981	508	421	225	245	48	125	662	130	1062	1000	75	4506
1982	508	421	183	252	47	126	652	128	1059	994	75	4449
1983	508	421	176	246	47	128	651	127	1063	996	75	4442
1984	508	421	179	220	47	130	651	127	1068	999	75	4430
1985	508	421	184	198	47	132	655	128	1082	1007	75	4440
1986	507	421	211	216	49	136	672	131	1105	1031	75	4556
1987	507	421	266	238	50	140	695	136	1152	1067	75	4750
1988	506	421	322	204	51	141	703	137	1178	1087	75	4830
1989	506	421	331	205	51	142	709	138	1205	1107	75	4894
1990	505	421	372	210	53	145	726	141	1244	1136	75	5030
1991	505	421	372	211	53	146	730	142	1272	1155	75	5087
1992	504	421	406	216	54	149	745	144	1312	1184	75	5212
1993	504	421	406	217	54	149	748	145	1341	1202	75	5265
1994	503	421	405	218	54	149	753	146	1372	1222	75	5322
1995	503	421	405	222	55	151	760	147	1412	1247	75	5403
2000	499	421	445	231	57	157	798	153	1594	1371	75	5804
2005	494	421	440	237	59	162	832	158	1787	1502	75	6176
2010	487	421	434	248	60	168	876	165	2012	1658	75	6612
2015	484	421	373	355	64	173	906	170	2216	1788	75	6930

Source: Mountain West Research - North, Inc., December, 1982

Note: Details may not sum due to rounding.

Table 6.4.2.1 - 3  
 Consol Level 1 Scenario Forecast  
 Employment by Type  
 by Place of Residence  
 Big Horn County

Year	Total	Non Basic	Basic Total	Non Project	Indirect Basic	Basic Project O&M	Project Construction-Perm	Project Construction-NLoc.
1980	4484	2204	2280	2017	0	227	35	0
1981	4506	2211	2295	2028	0	215	51	0
1982	4449	2171	2277	2039	0	175	62	0
1983	4442	2163	2278	2050	0	170	57	0
1984	4430	2158	2272	2063	0	176	32	0
1985	4440	2175	2265	2076	0	181	7	0
1986	4556	2212	2344	2109	0	209	20	3
1987	4750	2299	2451	2147	0	263	32	6
1988	4830	2322	2507	2183	0	320	3	0
1989	4894	2340	2553	2220	0	328	3	0
1990	5030	2396	2634	2261	0	368	3	0
1991	5087	2411	2675	2303	0	368	3	0
1992	5212	2461	2751	2344	0	402	3	0
1993	5265	2472	2792	2386	0	402	3	0
1994	5322	2486	2836	2430	0	402	3	0
1995	5403	2519	2883	2477	0	402	3	0
2000	5590	2531	3059	2725	0	329	3	0
2005	5962	2629	3332	3010	0	319	3	0
2010	6412	2772	3640	3326	0	311	3	0
2015	6835	2942	3893	3589	0	301	3	0

Source: Mountain West Research - North, Inc., December, 1982

Notes: Details may not sum due to rounding.  
 "Basic Project O & M" and "Indirect Basic" represent direct and indirect basic coal mining employment, respectively. No mines are assumed to operate in 2015.

Table 6.4.2.1 - 4  
 Consol Level 2 Scenario Forecast  
 Employment by Type  
 by Place of Residence  
 Big Horn County

Year	Total	Non Basic	Basic Total	Basic Non Project	Indirect Basic	Basic Project O&M	Project Construc- tion-Perm	Project Construc- tion-NLoc.
1980	4484	2204	2280	2017	0	227	35	0
1981	4506	2211	2295	2028	0	215	51	0
1982	4449	2171	2277	2039	0	175	62	0
1983	4442	2163	2278	2050	0	170	57	0
1984	4430	2158	2272	2063	0	176	32	0
1985	4440	2175	2265	2076	0	181	7	0
1986	4556	2212	2344	2109	0	209	20	3
1987	4750	2299	2451	2147	0	263	32	6
1988	4830	2322	2507	2183	0	320	3	0
1989	4894	2340	2553	2220	0	328	3	0
1990	5030	2396	2634	2261	0	368	3	0
1991	5087	2411	2675	2303	0	368	3	0
1992	5212	2461	2751	2344	0	402	3	0
1993	5265	2472	2792	2386	0	402	3	0
1994	5322	2486	2836	2430	0	402	3	0
1995	5403	2519	2883	2477	0	402	3	0
2000	5804	2633	3170	2725	0	441	3	0
2005	6176	2730	3442	3010	0	429	3	0
2010	6627	2875	3640	3326	0	320	3	0
2015	6949	2997	3952	3589	0	360	3	0

Source: Mountain West Research - North, Inc., December, 1982

Notes: Details may not sum due to rounding.

"Basic Project O & M" and "Indirect Basic" represent direct and indirect basic coal mining employment, respectively. No mines are assumed to operate in 2015.

Table 6.4.2.1 - 5  
 Consol Level 1 Scenario Forecast  
 Population Change  
 Big Horn County

Year	Total Population	Births	Deaths	Employment- Related Migration	Non-employment Related Migration	Total Change
1980	12180	0	0	0	0	0
1981	12325	293	120	2	-28	145
1982	12421	291	124	-44	-27	96
1983	12536	298	124	-35	-24	114
1984	12655	287	125	-19	-23	116
1985	12797	288	123	2	-24	141
1986	12938	282	124	8	-25	140
1987	13101	283	126	32	-26	163
1988	13292	280	132	70	-26	191
1989	13439	281	134	25	-26	147
1990	13716	273	136	164	-25	277
1991	13830	272	138	2	-22	113
1992	14050	274	139	106	-21	219
1993	14165	276	139	2	-24	113
1994	14303	272	143	32	-23	138
1995	14445	278	144	32	-24	142
2000	15007	289	158	2	-26	106
2005	15673	293	165	53	-25	157
2010	16628	302	175	69	-25	171
2015	17842	338	189	68	-25	192

Source: Mountain West Research - North, Inc., December, 1992

Notes: Details may not sum due to rounding.

All values except total population represent annual changes.



The 2015 population of 17,842 people represents a 46 percent increase over the 1980 population and implies an average annual growth rate of 1.1 percent.

The population projections for the Consol Level 2 scenario exhibit the same pattern as the employment forecast. As shown in Table 6.4.2.1-6, Big Horn County population is forecast to grow by 12 percent during the 1980s, by 10 percent during the 1990s, and by 11 percent during the first decade of the 2000s. The 2015 population of 17,943 people represents a 47 percent increase over the 1980 population and implies an average annual growth rate of 1.1 percent.

As shown in Table 6.4.2.1-7, total personal income in constant 1980 dollars under the Consol Level 1 scenario is forecast to increase steadily from \$79 million in 1980 to \$120 million in 2015, a 52 percent increase. However, commensurate population increases keep per capita personal income from increasing at a similar rate. Per capita personal income is forecast to increase from \$6,464, in 1980 to \$6,513 by 1990. It is then forecast to increase to \$6,563 by 2000 and \$6,776 by 2010.

As shown in Table 6.4.2.1-8, total personal income under the Consol Level 2 scenario is forecast to increase steadily from \$79 million in 1980 to \$123 million in 2015, a 56 percent increase. However, commensurate population increases keep per capita personal income from increasing at a similar rate. Per capita personal income is forecast to increase from \$6,464, in 1980 to \$6,513 by 1990. It is then forecast to increase to \$6,842 by 2000 and \$7,013 by 2010.

#### 6.4.2.2 Subcounty Area Population Forecasts

The Consol Level 1 and Level 2 mine population forecasts for the Crow Reservation, Northern Cheyenne Reservation, and Crow Indian population of the city of Hardin are identical to the baseline forecasts for these areas and are not presented again here (see tables 4.5.2.2-1 and 4.5.2.2-2 for the Crow Reservation baseline population forecast, Table 4.6.2-1 for the Northern Cheyenne Reservation baseline population forecasts, and Table 4.4.3.2-1 for the Hardin (Crow) baseline forecasts). This section focuses on the Consol levels 1 and 2 population forecasts for the Hardin, Hardin area, and Decker/Spring Creek subcounty areas where the with-project population forecasts differ from the baseline population forecasts.

As shown in tables 6.4.2.2-1 and 6.4.2.2-2, the Consol Level 1 and Level 2 non-Indian population in Hardin is forecast to increase from 2,632 people in 1980 to 2,845 people in 1990, an increase of 8 percent during the period when the Consol Level 1 mine construction and operations work forces reach their peaks. Total population in the city is forecast to increase from 3,215 in 1980 to 3,544 in 1990. The Hardin area (excluding the city) is forecast to increase from 978 persons in 1980 to 1,001 persons in 1990, an increase of 2 percent. Although the Decker area population is forecast to decline from 205 persons in 1980 to 196 persons in 1983, it would increase to 223 persons in 1990 under the Consol Level 1 scenario.

After 1990, in the Consol Level 1 scenario, the non-Indian population in Hardin and the Hardin area is forecast to increase steadily. By 2015, the non-Indian population in Hardin is forecast to be 3,404 persons, an increase of 29 percent over the 1980 level. The total population of the city is forecast to increase to 4,407 by 2015, 37.1 percent above the 1980 level. The Hardin area is forecast to grow to 1,159 persons in 2015, a 19 percent increase over its 1980 population. The Decker area population between 1990 and 2015 is forecast to fluctuate between 200 and 220 people.

Under the Consol Level 2 scenario, the non-Indian population of Hardin and the population of the Hardin and Decker area would increase more rapidly as Consol Level 2 construction and operations work forces reach their peaks. The non-Indian population of Hardin would rise to 3,092 people by 2000, a 9 percent increase over the 1990 population, while total city population would rise to 3,893 people, a 9.8 percent increase over 1990 levels. The Hardin area (excluding the city) would grow to 1,044 people by



Table 6.4.2.1 - 6  
 Consol Level 2 Scenario Forecast  
 Population Change  
 Big Horn County

Year	Total Population	Births	Deaths	Employment- Related Migration	Non-employment Related Migration	Total Change
1980	12180	0	0	0	0	0
1981	12325	293	120	2	-28	145
1982	12421	291	124	-44	-27	96
1983	12536	298	124	-35	-24	114
1984	12655	287	125	-19	-23	118
1985	12797	288	123	2	-24	142
1986	12938	282	124	8	-25	140
1987	13101	283	126	32	-26	163
1988	13292	280	132	70	-26	191
1989	13439	281	134	25	-26	147
1990	13716	273	136	164	-25	277
1991	13830	272	138	2	-22	113
1992	14050	274	139	106	-21	219
1993	14165	276	139	2	-24	115
1994	14303	272	143	32	-23	136
1995	14445	278	144	32	-24	142
2000	15178	293	159	7	-27	114
2005	15887	295	166	53	-25	157
2010	16340	304	176	76	-25	179
2015	17943	338	189	12	-25	136

Source: Mountain West Research - North, Inc., December, 1982

Notes: Details may not sum due to rounding.

All values except total population represent annual changes.

Table 6.4.2.1 - 7  
 Consol Level 1 Scenario Forecast  
 Personal Income  
 Big Horn County  
 (Thousands of 1980 Dollars)

Year	Total Labor Income	FICA Payments	Non-labor Income	Residency Adjustment	Total Personal Income	Personal Income Per Capita (1980 \$)
1980	62924	4905	20703	5	78728	6464
1981	63637	4961	20967	5	79649	NC
1982	61444	4790	20712	5	77372	NC
1983	60940	4750	20763	5	76957	NC
1984	60578	4722	20747	5	76608	NC
1985	61788	4816	20956	5	77933	NC
1986	62874	4901	21137	5	79115	NC
1987	67615	5271	21786	5	84136	NC
1988	68606	5348	21926	5	85190	NC
1989	69582	5424	22062	5	86225	NC
1990	72542	5655	22446	5	89339	6513
1991	73267	5711	22657	5	90218	NC
1992	76167	5937	22965	5	93200	NC
1993	76821	5988	23065	5	93903	NC
1994	77657	6054	23214	5	94822	NC
1995	79804	6221	23684	5	97272	NC
2000	80554	6279	24213	5	98493	6563
2005	85165	6639	25752	5	104276	NC
2010	91683	7148	28140	5	112675	6776
2015	97908	7633	30129	5	120404	6876

Source: Mountain West Research - North, Inc., December, 1982

Notes: Details may not sum du to rounding.

The personal and per capita income figures do not include Crow dividends from royalties and a possible Crow severance tax.

NC means not calculated.

Table 6.4.2.1 - 8  
 Consol Level 2 Scenario Forecast  
 Personal Income  
 Big Horn County  
 (Thousands of 1980 Dollars)

Year	Total Labor Income	FICA Payments	Non-labor Income	Residency Adjustment	Total Personal Income	Personal Income Per Capita (1980 \$)
1980	62924	4905	20703	5	78728	6464
1981	63637	4961	20967	5	79649	NC
1982	61444	4790	20712	5	77372	NC
1983	60940	4750	20763	5	76957	NC
1984	60578	4722	20747	5	76608	NC
1985	61788	4816	20956	5	77933	NC
1986	62874	4901	21137	5	79115	NC
1987	67615	5271	21786	5	84136	NC
1988	68606	5348	21926	5	85190	NC
1989	69582	5424	22062	5	86225	NC
1990	72542	5655	22446	5	89339	6513
1991	73267	5711	22657	5	90218	NC
1992	76167	5937	22965	5	93200	NC
1993	76821	5988	23065	5	93903	NC
1994	77657	6054	23214	5	94822	NC
1995	79804	6221	23684	5	97272	NC
2000	85660	6677	24854	5	103842	6842
2005	90281	7038	26417	5	109660	NC
2010	91880	7547	28830	5	118099	7013
2015	100513	7836	30615	5	123392	6876

Source: Mountain West Research - North, Inc., December, 1982

Notes: Details may not sum due to rounding.

The personal and per capita income figures do not include Crow dividends from royalties and a possible Crow severance tax.

NC means not calculated.

TABLE 6.4.2.2-1

Consol 1 Scenario Population Forecast  
Big Horn County Allocation Areas

Year	City of Hardin (total)	City of Hardin (non-Indian)	Hardin Area (excluding city)	Decker/Spring Creek Area
1980	3,215	2,632	978	205
1981	3,242	2,646	977	207
1982	3,245	2,637	969	203
1983	3,256	2,635	962	196
1984	3,270	2,638	958	197
1985	3,300	2,656	956	197
1986	3,326	2,671	955	203
1987	3,357	2,691	958	212
1988	3,414	2,736	970	210
1989	3,443	2,754	973	214
1990	3,544	2,845	1,001	223
1991	3,563	2,855	999	223
1992	3,639	2,921	1,018	228
1993	3,659	2,931	1,017	228
1994	3,696	2,958	1,022	228
1995	3,730	2,982	1,027	229
1996	3,748	2,989	1,025	229
1997	3,764	2,995	1,023	228
1998	3,781	3,002	1,021	228
1999	3,795	3,005	1,018	227
2000	3,805	3,004	1,014	226
2005	3,948	3,084	1,050	197
2010	4,168	3,249	1,106	207
2015	4,407	3,404	1,159	217

Source: Mountain West Research-North, Inc., 1983.

Note: Details may not sum due to rounding.

TABLE 6.4.2.2-2

Consol 2 Scenario Population Forecast  
Big Horn County Allocation Areas

Year	City of Hardin (total)	City of Hardin (non-Indian)	Hardin Area (excluding city)	Decker/Spring Creek Area
1980	3,215	2,632	978	205
1981	3,242	2,646	977	207
1982	3,245	2,637	969	203
1983	3,256	2,635	962	196
1984	3,270	2,638	958	197
1985	3,300	2,656	956	197
1986	3,326	2,671	955	203
1987	3,357	2,691	958	212
1988	3,414	2,736	970	210
1989	3,443	2,754	973	214
1990	3,544	2,845	1,001	223
1991	3,563	2,855	999	223
1992	3,639	2,921	1,018	228
1993	3,659	2,931	1,017	228
1994	3,696	2,958	1,022	228
1995	3,730	2,982	1,027	229
1996	3,747	2,999	1,030	229
1997	3,794	3,035	1,037	238
1998	3,863	3,084	1,049	258
1999	3,879	3,089	1,046	247
2000	3,893	3,092	1,044	247
2005	4,045	3,181	1,078	241
2010	4,265	3,346	1,134	251
2015	4,452	3,449	1,172	237

Source: Mountain West Research-North, Inc., 1983.

Note: Details may not sum due to rounding.

2000, a 4 percent increase over the 1990 population. The Decker area is forecast to reach a population of 247 people by 2000, an 11 percent increase over 1990.

After 2000, the non-Indian population of Hardin and the Hardin area is forecast to increase steadily. By 2015, the non-Indian population of Hardin is forecast to be 3,449 persons, an increase of 31 percent over the 1980 population. Total city population is forecast to reach 4,452 people by 2015. The Hardin area is forecast to grow to 1,172 persons in 2015, a 20 percent increase over its 1980 population. The Decker area population between 2000 and 2015 is forecast to decline from 247 to 237 people.

#### 6.4.3 Sheridan County and Communities

This section presents the level of economic/demographic activity resulting from the Consol levels 1 and 2 mines for Sheridan County and its subcounty areas. Section 6.4.3.1 discusses employment, population, and income levels for Sheridan County. Section 6.4.3.2 presents population levels for subcounty areas.

##### 6.4.3.1 Sheridan County

As shown in Table 6.4.3.1-1, Sheridan County's employment under the Consol Level 1 scenario is forecast to rise from 14,851 persons in 1990 to 16,240 persons in 2000, a 19 percent increase over the ten-year period during which the Consol Level 2 construction and operations work forces reach their peaks. After 2000, total employment is forecast to increase more rapidly, growing by 17 percent between 2000 and 2010. Total 2015 employment of 17,776 persons represents a 37 percent increase over total employment in 1980.

As shown in Table 6.4.3.1-2, Sheridan County's employment under the Consol Level 2 scenario is forecast to rise from 12,510 persons in 1982 to 16,557 persons in 1990, a 32 percent increase over the eight-year period during which the Consol construction and operations work forces reach their peaks. After 1990, total employment is forecast to increase more slowly, growing by 17 percent between 1990 and 2000 and declining by 13 percent between 2000 and 2010. Total 2015 employment of 16,851 persons represents a 30 percent increase over total employment in 1980.

Both basic and nonbasic employment are forecast to exhibit the same growth patterns as total employment (see Table 6.4.3.1-3). However, the ratio of nonbasic employment to basic employment is forecast to decline from 126 to 100 in 1980 to 118 to 100 in 1990 after Consol Level 1 operations employment has peaked. This decline continues through 2015, when the nonbasic/basic employment ratio is forecast to be 113 to 100.

As Table 6.4.3.1-4 shows, both basic and nonbasic employment are forecast to exhibit the same growth patterns as total employment under the Consol Level 2 scenario. However, the ratio of nonbasic employment to basic employment is forecast to decline from 118 to 100 in 1990 to 112 to 100 in 2000 after Consol Level 2 operations employment has peaked. This decline continues through 2015, when the nonbasic/basic employment ratio is forecast to be 111 to 100.

The population projections for the Consol Level 1 scenario exhibit the same pattern as the employment forecast. As shown in Table 6.4.3.1-5, Sheridan County's population is forecast to grow by 25 percent during the 1980s, decline by 0.7 percent during the 1990s, and increase by 1 percent during the first decade of the 2000s. The 2015 population of 31,479 people represents a 26 percent increase over the 1980 population and implies an average annual growth rate of 0.7 percent.



TABLE 6.4.3.1-1

Consol Level 1 Scenario Forecast  
Total Employment by Sector by Place of Residence  
Sheridan County

Year	Ag Propri etors	Ag Labor	Mining	Con struc tion	Manu factu ring	TCPU	Trade	FIRE	Ser vices	Gov ern ment	Other +com.	Total
1980	509	440	1151	1612	523	503	2814	500	2314	2464	104	12934
1981	509	440	1159	1347	519	510	2802	495	2311	2420	104	12618
1982	509	440	1044	1330	518	536	2809	493	2322	2403	104	12510
1983	509	440	943	1317	519	543	2824	491	2338	2393	104	12425
1984	509	440	1077	1319	537	596	2913	499	2402	2471	104	12869
1985	509	440	1209	1434	559	619	3026	510	2482	2575	104	13471
1986	508	440	1273	1591	580	651	3134	520	2557	2672	104	14034
1987	507	440	1511	1416	594	681	3205	527	2616	2737	104	14341
1988	506	440	1552	1366	603	695	3257	530	2659	2769	104	14484
1989	505	440	1576	1371	611	702	3308	533	2703	2805	104	14662
1990	504	440	1592	1377	621	710	3367	537	2752	2844	104	14851
1991	503	440	1591	1380	627	703	3410	539	2793	2870	104	14963
1992	502	440	1588	1384	635	710	3462	542	2839	2903	104	15113
1993	501	440	1585	1387	643	716	3512	545	2883	2929	104	15247
1994	500	440	1558	1390	649	721	3558	546	2925	2951	104	15345
1995	499	440	1576	1395	659	728	3619	550	2978	2992	104	15544
2000	494	440	1513	1415	696	725	3900	564	3235	3151	104	16240
2005	489	440	1650	1426	776	898	4339	589	3584	3505	104	17803
2010	484	439	1557	1502	818	933	4766	623	3980	3765	104	18978
2015	479	439	616	1461	809	4782	4783	604	4073	3617	104	17776

Source: Mountain West Research-North, Inc., 1982.

Note: Details may not sum due to rounding.



TABLE 6.4.3.1-2

Consol Level 2 Scenario Forecast  
Total Employment by Sector by Place of Residence  
Sheridan County

Year	Ag Propri etors	Ag Labor	Mining	Con struc tion	Manu factu ring	TCPU	Trade	FIRE	Ser vices	Gov ern ment	Other +com.	Total
1980	509	440	1151	1612	523	503	2814	500	2314	2464	104	12934
1981	509	440	1159	1347	519	510	2802	495	2311	2420	104	12618
1982	509	440	1044	1330	518	536	2809	493	2322	2403	104	12510
1983	509	440	943	1317	519	543	2824	491	2338	2393	104	12425
1984	509	440	1077	1319	537	596	2913	499	2402	2471	104	12869
1985	509	440	1209	1439	560	619	3027	510	2482	2577	104	13480
1986	508	440	1443	1733	599	670	3223	531	2612	2773	104	14640
1987	507	440	1892	1735	640	750	3414	552	2745	2973	104	15755
1988	506	440	2085	1567	660	789	3504	560	2814	3045	104	16078
1989	505	440	2195	1436	673	838	3570	564	2862	3088	104	16279
1990	504	440	2220	1433	689	875	3650	569	2922	3143	104	16552
1991	503	440	2219	1437	696	894	3699	572	2967	3176	104	16710
1992	502	440	2216	1442	704	901	3753	575	3014	3211	104	16865
1993	501	440	2213	1445	712	907	3804	578	3059	3239	104	17005
1994	500	440	2186	1448	719	913	3852	580	3102	3263	104	17110
1995	499	440	2204	1454	729	920	3915	584	3156	3306	104	17316
2000	494	440	2600	1521	825	1099	4441	625	3556	3715	104	19423
2005	489	440	824	1361	707	706	4026	551	3405	3155	104	15768
2010	484	439	731	1437	746	734	4448	584	3785	3407	104	16908
2015	479	439	181	1434	761	744	4658	589	3993	3467	104	16851

Source: Mountain West Research-North, Inc., 1982.

Note: Details may not sum due to rounding.

TABLE 6.4.3.1-3

Consol Level 1 Scenario Forecast  
Employment by Type  
Sheridan County

Year	Total	Non Basic	Basic Total	Basic Non Project	Indirect Basic	Basic Project O&M	Project Construc- tion-Perm	Project Construc- tion-NLoc.
1980	12934	7208	5725	4297	51	1014	92	268
1981	12618	7061	5557	4465	53	1022	4	12
1982	12510	6981	5528	4567	55	905	0	0
1983	12425	6925	5499	4637	58	803	0	0
1984	12869	7125	5744	4737	71	935	0	0
1985	13285	7318	5967	4815	78	1066	2	5
1986	14135	7716	6418	4904	105	1304	30	74
1987	15004	8145	6859	5006	120	1554	51	126
1988	15019	8161	6857	5102	109	1646	0	0
1989	15376	8321	7054	5207	119	1727	0	0
1990	15568	8414	7153	5290	121	1741	0	0
1991	15683	8462	7220	5364	116	1739	0	0
1992	15834	8531	7303	5452	115	1734	0	0
1993	15971	8580	7390	5543	116	1730	0	0
1994	16072	8615	7456	5637	116	1702	0	0
1995	16273	8708	7565	5730	115	1718	0	0
2000	15733	8399	7334	6149	71	1113	0	0
2005	15768	8364	7407	6730	24	650	0	0
2010	16908	8971	7937	7371	16	550	0	0
2015	16851	8946	7905	7905	0	0	0	0

Source: Mountain West Research-North, Inc., 1982.

Notes: Details may not sum due to rounding. "Basic project O&M" and "Indirect Basic" represent direct and indirect basic coal mining employment, respectively. No mines are assumed to operate in 2015.

TABLE 6.4.3.1-4

Consol Level 2 Scenario Forecast  
Employment by Type  
Sheridan County

Year	Total	Non Basic	Basic Total	Basic Non Project	Indirect Basic	Basic Project O&M	Project Construc- tion-Perm	Project Construc- tion-NLoc.
1980	12934	7208	5725	4297	51	1014	92	268
1981	12618	7061	5557	4465	53	1022	4	12
1982	12510	6981	5528	4567	55	905	0	0
1983	12425	6925	5499	4637	58	803	0	0
1984	12869	7125	5744	4737	71	935	0	0
1985	13265	7318	5967	4815	78	1066	2	5
1986	14135	7716	6418	4904	105	1304	30	74
1987	15004	8145	6859	5006	120	1554	51	126
1988	15019	8161	6857	5102	109	1646	0	0
1989	15376	8321	7054	5207	119	1727	0	0
1990	15568	8414	7153	5290	121	1741	0	0
1991	15683	8462	7220	5364	116	1739	0	0
1992	15834	8531	7303	5452	115	1734	0	0
1993	15971	8580	7390	5543	116	1730	0	0
1994	16072	8615	7456	5637	116	1702	0	0
1995	16273	8708	7565	5730	115	1718	0	0
2000	17742	9388	8354	6282	132	1939	0	0
2005	17805	9379	8423	6863	84	1476	0	0
2010	18928	10022	8956	7504	76	1376	0	0
2015	17776	9367	8409	7942	32	435	0	0

Source: Mountain West Research-North, Inc., 1982.

Notes: Details may not sum due to rounding. "Basic project O&M" and "Indirect Basic" represent direct and indirect basic coal mining employment, respectively. No mines are assumed to operate in 2015.

TABLE 6.4.3.1-5  
Consol Level 1 Scenario Forecast  
Population Change  
Sheridan County

Year	Total Population	Births	Deaths	Employment- Related Migration	Non-employment Related Migration	Total Change
1980	25040	0	0	0	0	0
1981	26197	435	210	1026	-93	1157
1982	26358	458	213	33	-116	161
1983	26469	445	212	0	-121	110
1984	26566	432	212	0	-119	99
1985	27172	418	210	508	-111	604
1986	29043	414	213	1775	-105	1871
1987	30704	435	217	1555	-111	1661
1988	30557	452	220	-261	-117	-147
1989	31193	435	222	542	-118	636
1990	31437	430	224	159	-121	243
1991	31503	417	226	0	-124	66
1992	31677	406	226	112	-118	173
1993	31809	403	228	76	-118	132
1994	31851	396	231	0	-123	42
1995	32026	384	232	149	-125	175
2000	31232	344	240	0	-130	-25
2005	29388	325	237	219	-120	185
2010	31545	364	269	435	-108	421
2015	31479	369	261	-113	-109	-114

Source: Mountain West Research-North, Inc., 1982.

Notes: Details may not sum due to rounding. All values except total population represent annual changes.

The population projections for the Consol Level 2 scenario exhibit the same pattern as the employment forecast under the Consol Level 2 scenario. As shown in Table 6.4.3.1-6, Sheridan County's population is forecast to grow by 8 percent during the 1990s and by 6 percent during the first decade of the 2000s. The 2015 population of 33,500 people represents a 34 percent increase over the 1980 population and implies an average annual growth rate of 0.8 percent.

As shown in Table 6.4.3.1-7, total personal income in constant 1980 dollars under the Consol Level 1 scenario is forecast to increase from \$279 million in 1980 to \$361 million in 2015, a 29 percent increase. However, commensurate population increases keep per capita personal income from increasing at a similar rate. Per capita personal income is forecast to decrease from \$11,125 in 1980 to \$10,541 by 1990. It continues to decrease to \$10,228 by 2000 and then increases to \$11,478 by 2015.

As shown in Table 6.4.3.1-8, total personal income in constant 1980 dollars under the Consol Level 2 scenario is forecast to increase from \$279 million in 1980 to \$383 million in 2015, a 37 percent increase. However, commensurate population increases keep per capita personal income from increasing at a similar rate, and per capita personal income is forecast to decrease from \$11,125 in 1980 to \$10,541 by 1990. It is then forecast to increase to \$10,898 by 2000 and \$11,447 by 2015.

#### 6.4.3.2 Subcounty Area Population Forecasts

As shown in Table 6.4.3.2-1, all of Sheridan County's subareas are forecast to experience steady population growth during the 1980s under the Consol Level 1 scenario. The city of Sheridan is forecast to grow from 15,139 people in 1980 to 19,013 people in 1990, a 26 percent increase over the period during which the Consol Level 1 construction and operations work forces reach their peaks. The greater Sheridan area is forecast to rise from 5,016 people in 1980 to 6,651 people in 1990, a 33 percent increase. The Ranchester-Dayton area population is forecast to rise from 1,841 people in 1980 to 2,318 people in 1990, a 26 percent increase. And finally, the rest of Sheridan County is forecast to grow from 3,042 people in 1980 to 3,453 people in 1990, a 14 percent increase.

After 1990, Consol Level 1 populations of all Sheridan County subcounty areas are forecast to grow more slowly. The city of Sheridan is forecast to grow by 3 percent during the 1990s and by 3 percent during the first decade of the 2000s. The city of Sheridan's 2015 population of 19,204 people would be 27 percent above the 1980 population. The greater Sheridan area is forecast to grow by 2 percent between 1990 and 1998, to drop to 5,859 in 2005, and then to stabilize at about 6,300 people through 2015. Its 2015 population of 6,291 people represents a 26 percent increase over the 1980 population. The Ranchester-Dayton population is forecast to remain stable during the 1990s at about 2,350 and then decline to about 2,200 people through 2015, when the forecast population of 2,204 people would be 20 percent above the 1980 population. The rest of Sheridan County is forecast to remain stable at about 3,400 people during the 1990s and then rise to 3,780 people in 2015, a 24 percent increase over the 1980 population.

Under the Consol Level 2 scenario (Table 6.4.3.2-2) the populations of all Sheridan County subcounty areas are forecast to increase more rapidly as Consol Level 2 construction and operations work forces reach their peaks. The city of Sheridan is forecast to grow by 8 percent during the 1990s and by 6 percent during the first decade of the 2000s. The city of Sheridan's 2015 population of 20,412 people would be 35 percent above the actual 1980 population. The greater Sheridan area is forecast to grow by 9 percent during the 1990s and by 5 percent between 2000 and 2010. The 2015 population of 6,912 people represents a 38 percent increase over the 1980 population. The Ranchester-Dayton area's population is forecast to grow by 9 percent during the 1990s and by 2 percent between 2000 and 2010. Its 2015 population of 2,371 people would be 29 percent above the 1980 population. The rest of Sheridan County is forecast to remain stable at about 3,450 people during the 1990s and then rise to 3,805 people in 2015, a 25 percent increase over the 1980 population.



TABLE 6.4.3.1-6  
 Consol Level 2 Scenario Forecast  
 Population Change  
 Sheridan County

Year	Total Population	Births	Deaths	Employment- Related Migration	Non-employment Related Migration	Total Change
1980	25040	0	0	0	0	0
1981	26197	435	210	1026	-93	1157
1982	26358	458	213	33	-116	161
1983	26469	445	212	0	-121	110
1984	26568	432	212	0	-119	99
1985	27172	418	210	508	-111	604
1986	29043	414	213	1775	-105	1871
1987	30704	435	217	1555	-111	1661
1988	30557	452	220	-261	-117	-147
1989	31193	435	222	542	-118	636
1990	31437	430	224	159	-121	243
1991	31503	417	226	0	-124	66
1992	31677	406	226	112	-118	173
1993	31809	403	228	76	-118	132
1994	31851	396	231	0	-123	42
1995	32026	384	232	149	-125	175
2000	33864	405	245	87	-135	112
2005	33681	404	245	335	-128	362
2010	35854	426	282	399	-117	425
2015	33500	397	269	-1250	-118	-1240

Source: Mountain West Research-North, Inc., 1982.

Notes: Details may not sum due to rounding. All values except total population represent annual changes.



TABLE 6.4.3.1-7

Consol Level 1 Scenario Forecast  
Personal Income  
Sheridan County  
(1980 \$000)

Year	Total Labor Income	FICA Payments Payments	Non-labor Income	Residency Adjustment	Total Personal Income	Personal Income Per Capita (1980 \$)
1980	183035	8342	103881	1	278575	11125
1981	175762	8011	102496	1	270249	10316
1982	171928	7836	102019	1	266112	10095
1983	168597	7684	101797	1	262711	9925
1984	177163	8075	103268	1	272359	10251
1985	184925	8428	104637	1	281135	10346
1986	202268	9219	107701	1	300752	10355
1987	219802	10018	111155	1	320941	10452
1988	219259	9993	111603	1	320870	10500
1989	225607	10283	112761	1	328087	10517
1990	228152	10399	113648	1	331404	10541
1991	229362	10454	114003	1	332913	10567
1992	231077	10532	114406	1	334952	10573
1993	232626	10603	114468	1	336493	10578
1994	233207	10629	114620	1	337200	10586
1995	235996	10756	115217	1	340458	10630
2000	214938	9796	114313	1	319456	10228
2005	213695	9744	122409	1	326361	10876
2010	227544	10375	134675	1	351844	11154
2015	226773	10340	144897	1	361330	11478

Source: Mountain West Research-North, Inc., 1982.

Note: Details may not sum due to rounding.

TABLE 6.4.3.1-8

Consol Level 2 Scenario Forecast  
Personal Income  
Sheridan County  
(1980 \$000)

Year	Total Labor Income	FICA Payments Payments	Non-labor Income	Residency Adjustment	Total Personal Income	Personal Income Per Capita (1980 \$)
1980	183035	8342	103881	1	278575	11125
1981	175762	8011	102496	1	270249	10316
1982	171928	7836	102019	1	266112	10095
1983	168597	7684	101797	1	262711	9925
1984	177163	8075	103268	1	272359	10251
1985	184925	8428	104637	1	281135	10346
1986	202268	9219	107701	1	300752	10355
1987	219802	10018	111155	1	320941	10452
1988	219259	9993	111603	1	320870	10500
1989	225607	10283	112761	1	328087	10517
1990	228152	10399	113648	1	331404	10541
1991	229362	10454	114003	1	332913	10567
1992	231077	10532	114406	1	334952	10573
1993	232626	10603	114468	1	336493	10578
1994	233207	10629	114620	1	337200	10586
1995	235996	10756	115217	1	340458	10630
2000	258876	11799	121980	1	369059	10898
2005	258022	11764	131055	1	377312	11203
2010	272375	12419	143346	1	404574	11283
2015	247267	11274	147468	1	383462	11447

Source: Mountain West Research-North, Inc., 1982.

Note: Details may not sum due to rounding.

TABLE 6.4.3.2-1

Consol 1 Scenario Population Forecast  
Sheridan County Allocation Areas

Year	Sheridan County	Sheridan City	Greater Sheridan Area	Ranchester/ Dayton Area	Rest of County
1980	25,040	15,139	5,016	1,841	3,042
1981	26,197	15,709	5,295	1,893	3,299
1982	26,358	15,795	5,339	1,906	3,317
1983	26,469	15,853	5,370	1,919	3,325
1984	26,568	15,903	5,397	1,933	3,333
1985	27,172	16,337	5,497	1,980	3,358
1986	29,043	17,542	6,003	2,113	3,384
1987	30,704	18,542	6,499	2,248	3,415
1988	30,557	18,444	6,442	2,251	3,418
1989	31,193	18,844	6,609	2,296	3,443
1990	31,437	19,013	6,651	2,318	3,453
1991	31,503	19,051	6,671	2,329	3,451
1992	31,677	19,168	6,708	2,342	3,457
1993	31,809	19,257	6,738	2,354	3,460
1994	31,851	19,282	6,751	2,362	3,456
1995	32,026	19,403	6,789	2,376	3,458
1996	32,042	19,415	6,793	2,382	3,450
1997	32,048	19,415	6,799	2,388	3,445
1998	32,050	19,413	6,804	2,393	3,439
1999	31,258	18,969	6,534	2,322	3,431
2000	31,232	18,955	6,528	2,325	3,423
2005	29,388	17,933	5,859	2,054	3,541
2010	31,545	19,247	6,297	2,206	3,795
2015	31,479	19,204	6,291	2,204	3,780

Source: Mountain West Research-North, Inc., 1983.

Note: Details may not sum due to rounding.

TABLE 6.4.3.2-2  
Consol 2 Scenario Population Forecast  
Sheridan County Allocation Areas

Year	Sheridan County	Sheridan City	Greater Sheridan Area	Ranchester/ Dayton Area	Rest of County
1980	25,040	15,139	5,016	1,841	3,042
1981	26,197	15,709	5,295	1,893	3,299
1982	26,358	15,795	5,339	1,906	3,317
1983	26,469	15,853	5,370	1,919	3,325
1984	26,568	15,903	5,397	1,933	3,333
1985	27,172	16,337	5,497	1,980	3,358
1986	29,043	17,542	6,003	2,113	3,384
1987	30,704	18,542	6,499	2,248	3,415
1988	30,557	18,444	6,442	2,251	3,418
1989	31,193	18,844	6,609	2,296	3,443
1990	31,437	19,013	6,651	2,318	3,453
1991	31,503	19,051	6,671	2,329	3,451
1992	31,677	19,168	6,708	2,342	3,457
1993	31,809	19,257	6,738	2,354	3,460
1994	31,851	19,282	6,751	2,362	3,456
1995	32,026	19,403	6,789	2,376	3,458
1996	32,201	19,532	6,820	2,385	3,462
1997	32,639	19,826	6,938	2,413	3,461
1998	33,630	20,433	7,243	2,495	3,458
1999	33,753	20,503	7,257	2,511	3,481
2000	33,864	20,586	7,277	2,519	3,481
2005	33,681	20,499	7,181	2,412	3,588
2010	35,854	21,824	7,622	2,565	3,843
2015	33,500	20,412	6,912	2,371	3,805

Source: Mountain West Research-North, Inc., 1983.

Note: Details may not sum due to rounding.

## 6.5 Youngs Creek Mine Forecast

This section describes the economic/demographic forecasts for the scenario that includes the Youngs Creek Mine as the only proposed action. The section presents the total level of population, employment, and income that would arise under the scenario. Section 6.5.1 presents a regional overview, and sections 6.5.2 and 6.5.3 present forecasts for Big Horn and Sheridan counties.

### 6.5.1 Regional Overview

As discussed in Chapter 5 and displayed in Table 5.5-1, construction of the Youngs Creek Mine would begin in 1986, peak in 1988 at 325 workers, and end in 1989. The operations period would begin in 1988 and peak in the years 1988 through 2010 at 300 workers. Operations period employment at the mine would begin to decline after 2010 and end by 2015.

#### 6.5.1.1 Regional Employment

As shown in Table 6.5.1.1-1, regional employment under the Youngs Creek scenario is forecast to rise from 16,959 persons in 1982 to 20,039 persons in 1990, a 18 percent increase over the eight-year period during which the Youngs Creek construction and operations work forces reach their peaks. After 1990, total employment is forecast to increase more slowly, growing by 10 percent between 1990 and 2000 and by 9 percent between 2000 and 2010. Total 2015 employment of 23,623 persons represents a 36 percent increase over total employment in 1980.

As Table 6.5.1.1-2 shows, both basic and nonbasic employment are forecast to exhibit the same growth patterns as total employment. However, the ratio of nonbasic employment to basic employment is forecast to decline from 118 to 100 in 1980 to 112 to 100 in 1990 after Youngs Creek operations employment has peaked. This decline would continue through 2015, when the nonbasic/basic employment ratio is very close to 1 to 1.

#### 6.5.1.2 Regional Population

The population projections for the Youngs Creek scenario exhibit the same pattern as the employment forecast. As shown in Table 6.5.1.2-1, regional population is forecast to grow by 17 percent during the 1980s, by 5 percent during the 1990s, and by 8 percent during the first decade of the 2000s. The 2015 population of 49,350 people represents a 32 percent increase over the 1980 population and implies an average annual growth rate of 0.8 percent.

#### 6.5.1.3 Regional Income

As shown in Table 6.5.1.3-1, total personal income in constant 1980 dollars under the Youngs Creek scenario is forecast to increase steadily from \$357 million in 1980 to \$479 million in 2015, a 34 percent increase. However, commensurate population increases keep per capita personal income from increasing at a similar rate. In fact, per capita personal income is actually forecast to decrease from \$9,600 in 1980 to \$9,499 by 1990. It is then forecast to increase to \$9,685 by 2000 and \$9,923 by 2010.



TABLE 6.5.1.1-1

Youngs Creek Scenario Forecast  
Total Employment by Sector  
Study Region

Year	Ag Propri etors	Ag Labor	Mining	Con struc tion	Manu factu ring	TCPU	Trade	FIRE	Ser vices	Gov ern ment	Other +com.	Total
1980	1017	861	1390	1837	572	628	3479	631	3363	3460	179	17418
1981	1017	861	1385	1593	567	635	3464	625	3374	3421	179	17125
1982	1017	861	1228	1582	566	662	3461	621	3381	3397	179	16959
1983	1017	861	1119	1563	567	672	3475	619	3402	3390	179	16867
1984	1017	861	1257	1540	585	726	3564	627	3470	3470	179	17300
1985	1017	861	1394	1528	601	745	3651	635	3547	3550	179	17711
1986	1015	861	1462	1584	616	773	3735	642	3622	3625	179	18117
1987	1014	861	1518	1774	634	790	3836	653	3744	3731	179	18737
1988	1012	861	1778	1923	660	815	3973	668	3916	3878	179	19666
1989	1011	861	1878	1621	665	833	4006	668	3969	3905	179	19599
1990	1009	861	1960	1615	682	872	4102	677	4087	3993	179	20039
1991	1008	861	1959	1620	689	892	4154	680	4159	4044	179	20248
1992	1006	861	1990	1630	698	901	4221	685	4245	4105	179	20524
1993	1005	861	1987	1634	706	907	4273	688	4317	4149	179	20710
1994	1003	861	1960	1636	712	913	4324	691	4390	4191	179	20864
1995	1002	861	1978	1646	722	922	4393	696	4484	4257	179	21144
2000	993	861	1913	1672	761	923	4701	714	4913	4529	179	22162
2005	983	861	1454	1643	789	945	4331	715	5220	4745	179	22566
2010	971	860	1355	1726	829	982	5396	754	5925	5152	179	24157
2015	963	860	495	1683	821	910	5535	765	6186	5222	179	23623

Source: Mountain West Research-North, Inc., 1982.

Note: Details may not sum due to rounding.



TABLE 6.5.1.1-2

Youngs Creek Scenario Forecast  
Employment by Type  
Study Region

Year	Total	Non Basic	Basic Total	Basic Non Project	Indirect Basic	Basic Project O&M	Project Construc- tion-Perm	Project Construc- tion-NLoc.
1980	17418	9412	8005	6315	51	1242	127	268
1981	17125	9272	7852	6494	53	1237	55	12
1982	16959	9153	7806	6607	55	1081	62	0
1983	16867	9088	7778	6688	58	973	57	0
1984	17300	9284	8015	6800	71	1111	32	0
1985	17711	9487	8224	6891	78	1248	6	0
1986	18117	9642	8475	7014	92	1315	37	16
1987	18737	9921	8816	7129	98	1370	146	72
1988	19666	10354	9311	7244	110	1628	219	109
1989	19599	10356	9243	7378	109	1727	20	8
1990	20039	10580	9458	7527	121	1806	3	0
1991	20248	10656	9592	7667	116	1804	3	0
1992	20524	10773	9750	7797	116	1833	3	0
1993	20710	10830	9879	7929	116	1829	3	0
1994	20864	10875	9988	8067	117	1800	3	0
1995	21144	10999	10144	8207	116	1817	3	0
2000	22162	11372	10789	8940	102	1743	3	0
2005	22566	11432	11132	9807	54	1269	3	0
2010	24157	12184	11973	10763	46	1161	3	0
2015	23623	11825	11798	11494	0	301	3	0

Source: Mountain West Research-North, Inc., 1982.

Notes: Details may not sum due to rounding. "Basic project O&M" and "Indirect Basic" represent direct and indirect basic coal mining employment, respectively. No mines are assumed to operate in 2015.

TABLE 6.5.1.2-1  
Youngs Creek Scenario Forecast  
Population Change  
Study Region

Year	Total Population	Births	Deaths	Employment- Related Migration	Non-employment Related Migration	Total Change
1980	37220	0	0	0	0	0
1981	38523	728	331	1028	-122	1303
1982	38780	750	337	-11	-143	257
1983	39005	743	337	-35	-145	225
1984	39223	719	337	-19	-143	218
1985	39942	706	334	482	-135	719
1986	40710	696	337	540	-131	768
1987	41482	694	341	554	-135	772
1988	42686	687	348	1004	-138	1204
1989	42679	692	353	-204	-142	-7
1990	43399	668	355	550	-142	720
1991	43634	661	360	76	-143	234
1992	44050	654	361	259	-136	416
1993	44301	656	363	97	-140	250
1994	44469	647	370	34	-142	168
1995	44813	641	371	220	-146	343
2000	45767	645	393	200	-154	298
2005	46272	398	420	353	-147	471
2010	49360	698	440	472	-135	595
2015	49250	711	447	-547	-136	-419

Source: Mountain West Research-North, Inc., 1982.

Notes: Details may not sum due to rounding. All values except total population represent annual changes.

TABLE 6.5.1.3-1

Youngs Creek Scenario Forecast  
Personal Income  
Study Region  
(1980 \$ 000)

Year	Total Labor Income	FICA Payments	Non-labor Income	Residency Adjustment	Total Personal Income	Personal Income Per Capita (1980 \$)
1980	245959	13248	124585	7	357303	9600
1981	239400	12972	123463	7	349898	NC
1982	233372	12626	122731	7	343485	NC
1983	229537	12435	122560	7	339669	NC
1984	237741	12797	124016	7	348968	NC
1985	246404	13230	125545	7	358726	NC
1986	252391	13508	126821	7	365712	NC
1987	264615	14260	129186	7	379548	NC
1988	284621	15534	132713	7	401807	NC
1989	284017	15494	132751	7	401281	NC
1990	293765	16133	134592	7	412232	9499
1991	296358	16275	135190	7	415280	NC
1992	300959	16578	135810	7	420198	NC
1993	303122	16698	135857	7	422289	NC
1994	304495	16787	136027	7	423741	NC
1995	309389	17080	136974	7	429291	NC
2000	319797	17684	141132	7	443252	9685
2005	323124	17989	150687	7	455820	NC
2010	343543	19135	165365	7	489793	9923
2015	323855	17943	172607	7	478519	9716

Source: Mountain West Research-North, Inc., 1982.

Notes: Details may not sum due to rounding. The personal and per capita figures do not include Crow dividends from royalties and a possible Crow severance tax. NC = not calculated.

## 6.5.2 Big Horn County, Reservations, and Communities

This section presents the level of economic/demographic activity resulting from the Youngs Creek Mine for Big Horn County and its subcounty areas. Section 6.5.2.1 discusses employment, population, and income levels for Big Horn County. Section 6.5.2.2 presents population levels for subcounty areas.

### 6.5.2.1 Big Horn County

As shown in Table 6.5.2.1-1, Big Horn County's employment under the Youngs Creek scenario is forecast to rise from 4,449 persons in 1982 to 5,261 persons in 1990, an 18 percent increase over the eight-year period during which the Youngs Creek construction and operations work forces reach their peaks. After 1990, total employment is forecast to increase more rapidly, growing by 13 percent between 1990 and 2000 and by 13 percent between 2000 and 2010. Total employment in 2015 of 6,815 persons represents a 52 percent increase over total employment in 1980.

Both basic and nonbasic employment are forecast to exhibit the same growth patterns as total employment (see Table 6.5.2.1-2). However, the ratio of nonbasic employment to basic employment is forecast to decline from 97 to 100 in 1980 to 91 to 100 in 1990 after Youngs Creek operations employment has peaked. This decline continues through 2015, when the nonbasic/basic employment ratio is forecast to be 76 to 100.

The population projections for the Youngs Creek scenario exhibit the same pattern as the employment forecast. As shown in Table 6.5.2.1-3, Big Horn County population is forecast to grow by 12 percent during the 1980s, by 10 percent during the 1990s, and by 11 percent during the first decade of the 2000s. The 2015 population of 17,843 people represents a 46 percent increase over the 1980 population and implies an average annual growth rate of 1.1 percent.

As shown in Table 6.5.2.1-4, total personal income in constant 1980 dollars under the Youngs Creek scenario is forecast to increase steadily from \$79 million in 1980 to \$120 million in 2015, a 53 percent increase. Per capita personal income is forecast to increase from \$6,464 in 1980 to \$7,548 by 1990. It is then forecast to increase to \$7,685 by 2000 and to decrease to \$6,774 by 2010.

### 6.5.2.2 Subcounty Area Population Forecasts

The Youngs Creek Mine population forecasts for the Crow Reservation, Northern Cheyenne Reservation, and Crow Indian population of the city of Hardin are identical to the baseline forecasts for these areas and are not presented again here (see tables 4.5.2.2-1 and 4.5.2.2-2 for the Crow Reservation baseline population forecasts, Table 4.6.2-1 for the Northern Cheyenne Reservation baseline population forecasts, and Table 4.4.3.2-1 for the Hardin (Crow) baseline forecasts). This section focuses on the Youngs Creek population forecasts for the Hardin, Hardin area, and Decker/Spring Creek subcounty areas where the with-project population forecasts differ from the baseline population forecasts.

As shown in Table 6.5.2.2-1, the non-Indian population in Hardin is forecast to increase from 2,632 people in 1980 to 2,793 people in 1990, an increase of 6 percent during the period when the Youngs Creek Mine construction and operations work forces reach their peaks. The Hardin area is forecast to increase from 978 persons in 1980 to 981 persons in 1990. Although the Decker area population is forecast to decline from 205 persons in 1980 to 196 persons in 1983, it would increase to 208 persons in 1990 under the Youngs Creek scenario.

After 1990, the non-Indian population of Hardin and the population of the Hardin area are forecast to increase steadily. By 2015, the non-Indian population of Hardin is forecast to be 3,404 persons, an

Table 6.5.2.1 - 1  
 Youngs Creek Scenario Forecast  
 Total Employment by Sector  
 by Place of Residence  
 Big Horn County

Year	Ag Proprietors	Ag Labor	Mining	Construction	Manufacturing	TCPU	Trade	FIRE	Ser vices	Gov ernment	Other +com.	Total
1980	508	421	239	225	49	125	665	131	1049	996	75	4484
1981	508	421	225	245	48	125	662	130	1062	1000	75	4508
1982	508	421	183	252	47	126	652	128	1059	994	75	4449
1983	508	421	176	246	47	128	651	127	1063	996	75	4442
1984	508	421	179	220	47	130	651	127	1068	999	75	4430
1985	508	421	184	197	47	132	654	128	1082	1006	75	4438
1986	507	421	188	221	48	134	661	129	1102	1022	75	4512
1987	507	421	213	323	49	137	677	133	1160	1057	75	4754
1988	506	421	382	404	51	141	701	137	1249	1106	75	5177
1989	506	421	430	238	51	140	699	137	1270	1118	75	5089
1990	505	421	487	236	52	143	716	140	1329	1154	75	5261
1991	505	421	487	237	52	145	721	141	1357	1174	75	5317
1992	504	421	520	242	53	147	735	143	1397	1202	75	5443
1993	504	421	520	243	53	147	738	143	1426	1220	75	5495
1994	503	421	520	244	53	148	743	145	1457	1240	75	5552
1995	503	421	520	248	54	150	750	146	1497	1266	75	5634
2000	499	421	519	254	55	154	777	150	1670	1379	75	5957
2005	494	421	516	261	57	159	812	154	1862	1510	75	6328
2010	487	421	510	271	58	165	849	161	2087	1666	75	6763
2015	484	421	314	252	63	171	891	168	2202	1774	75	6815

Source: Mountain West Research - North , Inc., 12/30/82

Notes: Details may not sum due to rounding.

"Basic project O & M" and " Indirect Basic " represent direct and indirect basic and mining employment, respectively. No mines are assumed to operate in 2015.



Table 6.5.2.1 - 2  
 Youngs Creek Scenario Forecast  
 Employment by Type  
 by Place of Residence  
 Big Horn County

Year	Total	Non Basic	Basic Total	Non Project	Indirect Basic	Basic Project O&M	Project Construction-Perm	Project Construction-NLoc.
1980	4484	2204	2280	2017	0	227	35	0
1981	4506	2211	2295	2028	0	215	51	0
1982	4449	2171	2277	2039	0	175	62	0
1983	4442	2163	2278	2050	0	170	57	0
1984	4430	2158	2272	2063	0	176	32	0
1985	4438	2174	2264	2076	0	181	6	0
1986	4512	2184	2327	2109	0	186	30	0
1987	4754	2273	2480	2147	0	211	118	3
1988	5177	2431	2746	2183	0	380	177	5
1989	5089	2423	2666	2220	0	427	16	0
1990	5261	2512	2749	2261	0	483	3	0
1991	5317	2527	2790	2303	0	483	3	0
1992	5443	2577	2866	2344	0	517	3	0
1993	5495	2587	2907	2386	0	517	3	0
1994	5552	2601	2951	2430	0	517	3	0
1995	5634	2635	2998	2477	0	517	3	0
2000	5957	2712	3245	2725	0	515	3	0
2005	6328	2809	3518	3010	0	505	3	0
2010	6778	2952	3826	3326	0	497	3	0
2015	6834	2941	3893	3589	0	301	3	0

Source: Mountain West Research - North , Inc., 12/30/82

Notes: Details may not sum due to rounding.

"Basic Project O & M" and "Indirect Basic" represent direct and indirect basic coal mining employment, respectively. No mines are assumed to operate in 2015.



Table 6.5.2.1 - 3  
 Youngs Creek Scenario Forecast  
 Population Change  
 Big Horn County

D	mHP	Total			Employment-	Non-employment		Total
		Population	Births	Deaths	Related Migration	Related Migration	Change	
	1980	12180	0	0	0	0	0	
	1981	12325	293	120	2	-28	145	
	1982	12421	291	124	-44	-27	96	
	1983	12536	298	124	-35	-24	114	
	1984	12655	287	125	-19	-23	118	
	1985	12797	288	123	2	-24	142	
	1986	12933	282	124	3	-25	135	
	1987	13070	283	126	6	-26	137	
	1988	13251	279	132	60	-26	181	
	1989	13365	280	134	-6	-26	113	
	1990	13609	271	135	133	-25	244	
	1991	13721	270	138	2	-22	111	
	1992	13945	271	138	113	-21	224	
	1993	14058	274	138	2	-24	112	
	1994	14196	270	143	34	-23	138	
	1995	14338	277	144	33	-24	141	
	2000	14996	290	158	34	-26	139	
	2005	15722	293	165	53	-25	157	
	2010	16625	302	175	64	-25	171	
	2015	17843	338	189	68	-25	192	

Source: Mountain West Research - North , Inc., 12/30/82

Notes: Details may not sum due to rounding.

All values except total population represent annual changes.

Table 6.5.2.1 - 4  
 Youngs Creek Scenario Forecast  
 Personal Income  
 Big Horn County  
 (Thousands of 1980 Dollars)

Year	Total Labor Income	FICA Payments	Non-labor Income	Residency Adjustment	Total Personal Income	Personal Income Per Capita (1980 \$)
1980	62924	4905	20703	5	78728	6464
1981	63637	4961	20967	5	79649	NC
1982	61444	4790	20712	5	77372	NC
1983	60940	4750	20763	5	76957	NC
1984	60578	4722	20747	5	76608	NC
1985	61754	4814	20953	5	77899	NC
1986	61902	4825	21062	5	78144	NC
1987	67931	5295	21986	5	84628	NC
1988	79122	6168	23713	5	96673	NC
1989	78724	6137	23678	5	96271	NC
1990	84745	6606	24571	5	102716	7548
1991	85465	6662	24778	5	103587	NC
1992	88366	6888	25084	5	106567	NC
1993	89017	6939	25181	5	107265	NC
1994	89851	7004	25327	5	108179	NC
1995	91999	7172	25795	5	110628	NC
2000	96013	7484	26716	5	115249	7685
2005	100609	7843	28260	5	121024	NC
2010	107126	8352	30647	5	129421	6774
2015	97889	7632	30090	5	120347	6744

Source: Mountain West Research - , Inc., 12/30/82

Notes: Details may not sum due to rounding.

The personal and per capita income figures do not include Crow dividends from royalties and a possible Crow severance tax

NC means not calculated.

TABLE 6.5.2.2-1

Youngs Creek Scenario Population Forecast  
Big Horn County Allocation Areas

Year	City of Hardin (total)	City of Hardin (non-Indian)	Hardin Area (excluding city)	Decker/Spring Creek Area
1980	3,215	2,632	978	205
1981	3,242	2,646	977	207
1982	3,245	2,637	969	203
1983	3,256	2,635	962	196
1984	3,270	2,638	958	197
1985	3,300	2,656	956	197
1986	3,326	2,671	955	198
1987	3,345	2,679	954	203
1988	3,390	2,712	962	210
1989	3,408	2,719	959	202
1990	3,492	2,793	981	208
1991	3,509	2,801	980	208
1992	3,589	2,871	1,000	212
1993	3,608	2,880	998	211
1994	3,644	2,906	1,003	211
1995	3,678	2,930	1,009	212
1996	3,706	2,947	1,011	211
1997	3,726	2,957	1,010	211
1998	3,750	2,971	1,012	211
1999	3,781	2,991	1,015	211
2000	3,810	3,009	1,019	210
2005	3,961	3,097	1,053	203
2010	4,182	3,263	1,109	213
2015	4,407	3,404	1,159	217

Source: Mountain West Research-North, Inc., 1983.

Note: Details may not sum due to rounding.

increase of 29 percent over the 1980 population. The Hardin area (excluding the city) is forecast to grow to 1,159 persons in 2015, a 19 percent increase over its 1980 population. Over the 1980-2015 period, the total population of the city of Hardin is forecast to increase from 3,215 persons to 4,407 persons, an increase of 37.1 percent. Between 1990 and 2015, the Decker area population is forecast to fluctuate between 200 and 220 people.

#### 6.5.3 Sheridan County and Communities

This section presents the level of economic/demographic activity resulting from the Youngs Creek Mine for Sheridan County and its subcounty areas. Section 5.5.3.1 discusses employment, population, and income levels for Sheridan County. Section 6.5.3.2 presents population levels for subcounty areas.

##### 6.5.3.1 Sheridan County

As shown in Table 6.5.3.1-1, Sheridan County's employment under the Youngs Creek scenario is forecast to rise from 12,510 persons in 1982 to 15,568 persons in 1990, an 24 percent increase over the eight-year period during which the Youngs Creek construction and operations work forces reach their peaks. After 1990, total employment is forecast to increase more slowly, growing by 11 percent between 1990 and 2000 and by 10 percent between 2000 and 2010. Total 2015 employment of 16,789 persons represents a 30 percent increase over total employment in 1980.

Both basic and nonbasic employment are forecast to exhibit the same growth patterns as total employment (see Table 6.5.3.1-2). However, the ratio of nonbasic employment to basic employment is forecast to decline from 126 to 100 in 1980 to 120 to 100 in 1990 after Youngs Creek operations employment has peaked. This decline continues through 2015, when the nonbasic/basic employment ratio is forecast to be 112 to 100.

The population projections for the Youngs Creek scenario exhibit the same pattern as the employment forecast. As shown in Table 6.5.3.1-3, Sheridan County population is forecast to grow by 19 percent during the 1980s, by 3 percent during the 1990s, and by 6 percent during the first decade of the 2000s. The 2015 population of 31,507 people represents a 26 percent increase over the 1980 population and implies an average annual growth rate of 0.7 percent.

As shown in Table 6.5.3.1-4, total personal income in constant 1980 dollars under the Youngs Creek scenario is forecast to increase from \$279 million in 1980 to \$358 million in 2015, a 28 percent increase. However, commensurate population increases keep per capita personal income from increasing at a similar rate. In fact, per capita personal income is forecast to decrease from \$11,125, in 1980 to \$10,389 by 1990. It is then forecast to increase to \$10,659 by 2000 and \$11,320 by 2015.

##### 6.5.3.2 Subcounty Area Population Forecasts

As shown in Table 6.5.3.2-1, all of Sheridan County's subareas are forecast to experience steady population growth during the 1980s under the Youngs Creek scenario. The city of Sheridan is forecast to grow from 15,139 people in 1980 to 18,073 people in 1990, a 19 percent increase over the period during which the Youngs Creek construction and operations work forces reach their peaks. The greater Sheridan area is forecast to grow from 5,016 people in 1980 to 6,093 people in 1990, a 21 percent increase. The Ranchester-Dayton area population is forecast to rise from 1,841 people in 1980 to 2,170 people in 1990, an 18 percent increase. And finally, the rest of Sheridan County is forecast to grow from 3,042 people in 1980 to 3,452 people in 1990, a 13 percent increase.

TABLE 6.5.3.1-1

Youngs Creek Scenario Forecast  
Total Employment by Sector by Place of Residence  
Sheridan County

Year	Ag Propri etors	Ag Labor	Mining	Con struc tion	Manu factu ring	TCPU	Trade	FIRE	Ser vices	Gov ern ment	Other +com.	Total
1980	509	440	1151	1612	523	503	2814	500	2314	2464	104	12934
1981	509	440	1159	1347	519	510	2802	495	2311	2420	104	12618
1982	509	440	1044	1330	518	536	2809	493	2322	2403	104	12510
1983	509	440	943	1317	519	543	2824	491	2338	2393	104	12425
1984	509	440	1077	1319	537	596	2913	499	2402	2471	104	12869
1985	509	440	1209	1331	553	613	2996	507	2464	2543	104	13272
1986	508	440	1273	1362	568	639	3073	513	2520	2603	104	13605
1987	507	440	1304	1450	584	653	3159	520	2584	2674	104	13983
1988	506	440	1395	1518	608	673	3272	530	2666	2772	104	14488
1989	505	440	1447	1382	614	692	3307	531	2699	2786	104	14510
1990	504	440	1473	1379	630	728	3386	536	2757	2839	104	14778
1991	503	440	1472	1383	636	747	3433	539	2801	2870	104	14931
1992	502	440	1469	1387	645	753	3486	542	2847	2903	104	15080
1993	501	440	1466	1390	652	759	3535	544	2891	2929	104	15214
1994	500	440	1439	1392	658	765	3581	546	2933	2950	104	15311
1995	499	440	1457	1398	668	772	3642	550	2986	2991	104	15510
2000	494	440	1393	1418	705	768	3923	564	3242	3150	104	16204
2005	489	440	938	1382	731	785	4119	660	3455	3234	104	10237
2010	484	439	845	1454	771	817	4540	592	3837	3486	104	17379
2015	479	439	181	1431	758	740	4641	586	3982	3447	104	16789

Source: Mountain West Research-North, Inc., 1982.

Note: Details may not sum due to rounding.



TABLE 6.5.3.1-2

Youngs Creek Scenario Forecast  
Employment by Type by Place of Residence  
Sheridan County

Year	Total	Non Basic	Basic Non Total	Basic Non Project	Indirect Basic	Basic Project O&M	Project Construc- tion-Perm	Project Construc- tion-NLoc.
1980	12934	7208	5725	4297	51	1014	92	268
1981	12618	7061	5557	4465	53	1022	4	12
1982	12510	6981	5528	4567	55	905	0	0
1983	12425	6925	5499	4637	58	803	0	0
1984	12869	7125	5744	4737	71	935	0	0
1985	13272	7312	5959	4815	78	1066	0	0
1986	13605	7457	6148	4904	92	1129	6	15
1987	13983	7647	6335	4981	98	1159	28	68
1988	14488	7923	6565	5061	109	1248	42	103
1989	14510	7933	6577	5157	108	1299	3	8
1990	14778	8068	6709	5265	121	1322	0	0
1991	14931	8129	6801	5364	116	1320	0	0
1992	15080	8196	6884	5452	115	1315	0	0
1993	15214	8242	6971	5543	116	1311	0	0
1994	15311	8274	7037	5637	116	1283	0	0
1995	15510	8364	7146	5730	115	1300	0	0
2000	16204	8660	7544	6215	102	1227	0	0
2005	16237	8723	7614	6796	54	764	0	0
2010	17379	9232	8147	7437	46	664	0	0
2015	16789	8884	7905	7905	0	0	0	0

Source: Mountain West Research-North, Inc., 1982.

Notes: Details may not sum due to rounding. "Basic project O&M" and "Indirect Basic" represent direct and indirect basic coal mining employment, respectively. No mines are assumed to operate in 2015.



TABLE 6.5.3.1-3

Youngs Creek Scenario Forecast  
Population Change  
Sheridan County

Year	Total Population	Births	Deaths	Employment- Related Migration	Non-employment Related Migration	Total Change
1980	25040	0	0	0	0	0
1981	26197	435	210	1026	-93	1157
1982	26358	458	213	33	-116	161
1983	26469	445	212	0	-121	110
1984	26568	432	212	0	-119	99
1985	27145	418	210	480	-111	577
1986	27777	414	213	537	-105	632
1987	28412	411	214	547	-108	634
1988	29435	408	215	943	-112	1023
1989	29313	412	219	-198	-116	-121
1990	29790	396	219	417	-117	476
1991	29912	390	222	74	-120	123
1992	30104	382	222	146	-115	192
1993	30242	381	224	95	-115	137
1994	30272	376	226	0	-119	30
1995	30475	364	226	186	-122	202
2000	30770	355	234	165	-127	158
2005	30569	362	233	350	-121	356
2010	32703	387	265	403	-110	414
2015	31507	373	258	-679	-111	-675

Source: Mountain West Research-North, Inc., 1982.

Notes: Details may not sum due to rounding. All values except total population represent annual changes.

TABLE 6.5.3.1-4

Youngs Creek Scenario Forecast  
 Personal Income  
 Sheridan County  
 (1980 \$000)

Year	Total Labor Income	FICA Payments Payments	Non-labor Income	Residency Adjustment	Total Personal Income	Personal Income Per Capita (1980 \$)
1980	183035	8342	103881	1	278575	11125
1981	175762	8011	102496	1	270249	10316
1982	171928	7836	102019	1	266112	10095
1983	168597	7684	101797	1	262711	9925
1984	177163	8075	103268	1	272359	10251
1985	184649	8416	104592	1	280827	10345
1986	190489	8682	105759	1	287568	10352
1987	196683	8964	107200	1	294920	10380
1988	205498	9366	108999	1	305134	10366
1989	205292	9357	109072	1	305010	10405
1990	209020	9527	110020	1	309516	10389
1991	210892	9612	110411	1	311693	10420
1992	212592	9689	110726	1	313630	10418
1993	214104	9758	110676	1	315023	10416
1994	214643	9783	110700	1	315562	10424
1995	217390	9908	111179	1	318663	10456
2000	223784	10200	114416	1	328002	10659
2005	222514	10146	122427	1	334795	10952
2010	236389	10778	134717	1	360328	11018
2015	225967	10304	142542	1	358205	11320

Source: Mountain West Research-North, Inc., 1982.

Note: Details may not sum due to rounding.

TABLE 6.5.3.2-1

Youngs Creek Scenario Population Forecast  
Sheridan County Allocation Areas

Year	Sheridan County	Sheridan City	Greater Sheridan Area	Ranchester/ Dayton Area	Rest of County
1980	25,040	15,139	5,016	1,841	3,042
1981	26,197	15,709	5,295	1,893	3,299
1982	26,358	15,795	5,339	1,906	3,317
1983	26,469	15,853	5,370	1,919	3,325
1984	26,568	15,903	5,397	1,933	3,333
1985	27,145	16,320	5,488	1,978	3,358
1986	27,777	16,772	5,614	2,010	3,380
1987	28,412	17,170	5,785	2,058	3,397
1988	29,435	17,810	6,068	2,138	3,417
1989	29,313	17,728	6,025	2,141	3,418
1990	29,790	18,073	6,093	2,170	3,452
1991	29,912	18,155	6,121	2,181	3,454
1992	30,104	18,288	6,159	2,194	3,462
1993	30,242	18,383	6,187	2,205	3,466
1994	30,272	18,402	6,195	2,212	3,462
1995	30,475	18,544	6,237	2,226	3,466
1996	30,563	18,612	6,252	2,234	3,464
1997	30,586	18,621	6,263	2,242	3,460
1998	30,583	18,616	6,265	2,247	3,454
1999	30,612	18,641	6,269	2,251	3,449
2000	30,770	18,766	6,293	2,257	3,454
2005	30,569	18,667	6,191	2,149	3,561
2010	32,703	19,969	6,620	2,298	3,816
2015	31,507	19,219	6,301	2,206	3,781

Source: Mountain West Research-North, Inc., 1983.

Note: Details may not sum due to rounding.

After 1990, the populations of all Sheridan County subcounty areas are forecast to grow more slowly. The city of Sheridan is forecast to grow by 4 percent during the 1990s and by 6 percent during the first decade of the 2000s. The city of Sheridan's 2015 population of 19,219 people would be 27 percent above the actual 1980 population. The greater Sheridan area is forecast to grow by 3 percent during the 1990s and by 5 percent between 2000 and 2010. Its 2015 population of 6,301 people would be below the 2010 population, but still represents a 26 percent increase over the actual 1980 population. The Ranchester-Dayton area's population is forecast to grow very slowly to a peak in 2000 of 2,250 people and then to decline to 2,206 in 2015, when the forecast population would be 20 percent above the 1980 population. The rest of Sheridan County is forecast to remain stable at about 3,450 people during the 1990s and then to rise to 3,781 people in 2015, a 24 percent increase over the 1980 population.

## 6.6 Cumulative Forecast

This section describes the economic/demographic forecasts for the cumulative scenario. The section presents the total level of population, employment, and income that would arise under the scenario. Section 6.6.1 presents a regional overview, and sections 6.6.2 and 6.6.3 present forecasts for Big Horn and Sheridan counties.

### 6.6.1 Regional Overview

As discussed in Chapter 5 and displayed in Table 5.5-1, construction activity in the cumulative scenario would occur between 1985 and 1989 and again between 1996 and 1998. In both periods, total construction employment would peak at about 400 to 500 workers. The operations period would begin in 1986 and rise sharply to 1,169 workers during the early 1990s. Operations period employment would rise to 1,886 workers in 2002 and then decline to 877 workers by 2015.

#### 6.6.1.1 Regional Employment

As shown in Table 6.6.1.1-1, regional employment under the cumulative scenario is forecast to rise from 16,959 persons in 1982 to 22,038 persons in 1990, a 30 percent increase over the eight-year period during which the KME, Consol, and Youngs Creek construction and operations work forces reach their peaks. After 1990, total employment is forecast to increase more slowly, growing by 18 percent between 1990 and 2000 and by 7 percent between 2000 and 2010. Total 2015 employment of 25,819 persons represents a 48 percent increase over total employment in 1980.

Both basic and nonbasic employment are forecast to exhibit the same growth patterns as total employment (see Table 6.6.1.1-2). However, the ratio of nonbasic employment to basic employment is forecast to decline from 118 to 100 in 1980 to 111 to 100 in 1990 after operations employment has peaked, at the KME, Consol, and Youngs Creek mines. This decline continues through 2015, when the nonbasic/basic employment ratio is forecast to be 102 to 100.

#### 6.6.1.2 Regional Population

The population projections for the cumulative scenario exhibit the same pattern as the employment forecast. As shown in Table 6.6.1.2-1, regional population is forecast to grow by 27 percent during the 1980s, by 11 percent during the 1990s, and by 5 percent during the first decade of the 2000s. The 2015 population of 53,247 people represents a 43 percent increase over the 1980 population and implies an average annual growth rate of 1 percent.

TABLE 6.6.1.1-1

Cumulative Scenario Forecast  
Total Employment  
Study Region

Year	Ag Propri etors	Ag Labor	Mining	Con struc tion	Manu factu ring	TCPU	Trade	FIRE	Ser vices	Gov ern ment	Other +com.	Total
1980	1017	861	1390	1837	572	628	3479	631	3363	3460	179	17418
1981	1017	861	1385	1593	567	635	3464	625	3374	3421	179	17125
1982	1017	861	1228	1582	566	662	3461	621	3381	3397	179	16959
1983	1017	861	1119	1563	567	672	3475	619	3402	3390	179	16867
1984	1017	861	1257	1540	585	726	3564	627	3470	3470	179	17300
1985	1017	861	1394	1664	608	753	3690	640	3570	3591	179	17970
1986	1015	861	1660	2047	650	810	3916	666	3738	3825	179	19371
1987	1014	861	2201	2121	692	893	4126	692	3939	4066	179	20788
1988	1012	861	2581	1979	713	935	4230	702	4090	4178	179	21464
1989	1011	861	2747	1682	726	984	4296	706	4162	4235	179	21593
1990	1009	861	2829	1677	743	1023	4393	715	4280	4325	179	22038
1991	1008	861	2828	1683	750	1044	4447	719	4354	4378	179	22253
1992	1006	861	2859	1692	760	1053	4515	724	4440	4441	179	22534
1993	1005	861	2856	1697	768	1060	4569	727	4514	4488	179	22727
1994	1003	861	2829	1700	775	1066	4622	731	4588	4532	179	22889
1995	1002	861	2847	1711	785	1075	4693	736	4683	4601	179	23176
2000	993	861	3416	1816	885	1261	5267	785	5365	5170	179	26002
2005	983	861	2970	1793	915	1279	5508	788	5688	5404	179	26468
2010	971	860	2676	1867	949	1308	5939	822	6365	5766	179	27737
2015	963	860	1285	1759	902	1177	5881	800	6422	5587	179	25819

Source: Mountain West Research-North, Inc., 1982.

Note: Details may not sum due to rounding.



TABLE 6.6.1.1-2

Cumulative Scenario Forecast  
Employment by Type  
Study Region

Year	Total	Non Basic	Basic Total	Basic Non Project	Indirect Basic	Basic Project O&M	Project Construc- tion-Perm	Project Construc- tion-NLoc.
1980	17418	9412	8005	6315	51	1242	127	268
1981	17125	9272	7852	6494	53	1237	55	12
1982	16959	9153	7806	6607	55	1081	62	0
1983	16867	9088	7778	6688	58	973	57	0
1984	17300	9284	8015	6800	71	1111	32	0
1985	17970	9610	8360	6891	88	1248	73	58
1986	19371	10249	9122	7014	122	1513	246	225
1987	20788	10928	9859	7171	136	2053	266	232
1988	21464	11253	10210	7310	140	2431	219	109
1989	21593	11348	10245	7469	150	2596	20	8
1990	22038	11577	10460	7618	163	2675	3	0
1991	22253	11659	10593	7758	158	2673	3	0
1992	22534	11782	10752	7888	158	2702	3	0
1993	22727	11846	10881	8020	158	2698	3	0
1994	22889	11898	10990	8158	159	2669	3	0
1995	23176	12029	11146	8298	157	2686	3	0
2000	26002	13383	12619	9164	205	3246	3	0
2005	26468	13503	12963	10023	153	2785	3	0
2010	27737	14128	13609	10979	145	2482	3	0
2015	25819	13014	12805	11670	41	1091	3	0

Source: Mountain West Research-North, Inc., 1982.

Notes: Details may not sum due to rounding. "Basic project O&M" and "Indirect Basic" represent direct and indirect basic coal mining employment, respectively. No mines are assumed to operate in 2015.



TABLE 6.6.1.2-1  
Cumulative Scenario Forecast  
Population Change  
Study Region

Year	Total Population	Births	Deaths	Employment- Related Migration	Non-employment Related Migration	Total Change
1980	37220	0	0	0	0	0
1981	38523	728	331	1028	-122	1303
1982	38780	750	337	-11	-143	257
1983	39005	743	337	-35	-145	225
1984	39223	719	337	-19	-143	218
1985	40403	706	334	943	-135	1180
1986	43073	703	337	2437	-132	2670
1987	45594	735	345	2270	-139	2521
1988	46219	765	356	363	-147	625
1989	46636	760	361	168	-150	417
1990	47334	741	365	473	-151	698
1991	47574	729	370	31	-151	239
1992	47981	718	371	205	-144	408
1993	48227	716	374	51	-148	245
1994	48429	703	381	32	-151	202
1995	48713	695	384	128	-155	284
2000	52578	749	417	142	-171	303
2005	53014	746	431	177	-163	330
2010	55404	750	477	503	-148	628
2015	53247	751	470	-23	-142	116

Source: Mountain West Research-North, Inc., 1982.

Notes: Details may not sum due to rounding. All values except total population represent annual changes.

### 6.6.1.3 Regional Income

As shown in Table 6.6.1.3-1, total personal income in constant 1980 dollars under the cumulative scenario is forecast to increase steadily from \$357 million in 1980 to \$537 million in 2015, a 50 percent increase. However, commensurate population growth causes per capita personal income to increase at a slower rate. Per capita personal income is forecast to increase from \$9,600 in 1980 to \$9,774 by 1990. It is then forecast to increase to \$10,417 by 2000, \$10,650 by 2010, and then decline to \$10,086 by 2015.

### 6.6.2 Big Horn County, Reservations, and Communities

This section presents the level of economic/demographic activity resulting from the cumulative scenario for Big Horn County and its subcounty areas. Section 6.6.2.1 discusses employment, population, and income levels for Big Horn County. Section 6.6.2.2 presents population levels for subcounty areas.

#### 6.6.2.1 Big Horn County

As shown in Table 6.6.2.1-1, Big Horn County's employment under the cumulative scenario is forecast to rise from 4,449 persons in 1982 to 5,486 persons in 1990, a 23 percent increase over the eight-year period during which the KME, Consol, and Youngs Creek construction and operations work forces reach their peaks. After 1990, total employment is forecast to increase more rapidly, growing by 20 percent between 1990 and 2000 and by 12 percent between 2000 and 2010. Total 2015 employment of 7,119 persons represents a 59 percent increase over total employment in 1980.

Both basic and nonbasic employment are forecast to exhibit the same growth patterns as total employment (see Table 6.6.2.1-2). However, the ratio of nonbasic employment to basic employment is forecast to decline from 97 to 100 in 1980 to 91 to 100 in 1990 after KME, Consol, and Youngs Creek operations employment have peaked. This decline would continue through 2015, when the nonbasic/basic employment ratio is forecast to be 77 to 100.

The population projections for the cumulative scenario exhibit the same pattern as the employment forecast. As shown in Table 6.6.2.1-3, Big Horn County population is forecast to grow by 13 percent during the 1980s, by 11 percent during the 1990s, and by 11 percent during the first decade of the 2000s. The 2015 population of 18,004 people represents a 48 percent increase over the 1980 population and implies an average annual growth rate of 1.1 percent.

As shown in Table 6.6.2.1-4, total personal income in constant 1980 dollars under the cumulative scenario is forecast to increase from \$79 million in 1980 to \$132 million in 2015, a 67 percent increase. Per capita personal income in Big Horn County would increase at an even faster rate. Per capita personal income is forecast to increase from \$6,464, in 1980 to \$7,863 by 1990. It is then forecast to increase to \$9,126 by 2000 and drop slightly to \$9,088 in 2010.

#### 6.6.2.2 Subcounty Area Population Forecasts

The cumulative scenario population forecasts for the Crow Reservation, Northern Cheyenne Reservation, and Crow Indian population in the city of Hardin are identical to the baseline forecasts for these areas and are not presented again (see tables 4.5.2.2-1 and 4.5.2.2-2 for the Crow Reservation baseline population forecasts, Table 4.6.2-1 for the Northern Cheyenne Reservation baseline population forecasts, and Table 4.4.3.2-1 for the Crow Indian population of Hardin baseline forecasts). This section focuses on the cumulative scenario population forecasts for the Hardin, Hardin area, and Decker/Spring Creek subcounty areas where the with-project population forecasts differ from the baseline population forecasts.

TABLE 6.6.1.3-1

Cumulative Scenario Forecast  
Personal Income  
Study Region  
(1980 \$ 000)

Year	Total Labor Income	FICA Payments Payments	Non-labor Income	Residency Adjustment	Total Personal Income	Personal Income Per Capita (1980 \$)
1980	245959	13248	124585	7	357303	9600
1981	239400	12972	123463	7	349896	NC
1982	233372	12626	122731	7	343485	NC
1983	229537	12435	122560	7	339669	NC
1984	237741	12797	124016	7	348968	NC
1985	251663	13516	126380	7	364734	NC
1986	279527	14907	131087	7	395715	NC
1987	310003	16542	136646	7	430114	NC
1988	324994	17539	139763	7	447226	NC
1989	328474	17697	140617	7	451401	NC
1990	338278	18339	142690	7	462636	9774
1991	340940	18484	143495	7	465958	NC
1992	345616	18791	144339	7	471171	NC
1993	347863	18915	144639	7	473595	NC
1994	349329	19008	145088	7	475416	NC
1995	354324	19306	146316	7	481342	NC
2000	410521	22554	159734	7	547708	10417
2005	414875	22940	171613	7	563546	NC
2010	426862	23659	186840	7	590063	10650
2015	372870	20519	184692	7	537042	10085

Source: Mountain West Research-North, Inc., 1982.

Notes: Details may not sum due to rounding. The personal and per capita figures do not include Crow dividends from royalties and a possible Crow severance tax. NC = not calculated.

Table 6.6.2.1 - 1  
Cumulative Scenario Forecast  
Total Employment by Sector  
by Place of Residence  
Big Horn County

Year	As Propri- etors	As Labor	Min- ing	Con- struc- tion	Manu- factu- ring	TCPU	Trade	FIRE	Ser- vices	Gov- ern- ment	Other econ.	Total
1980	508	421	239	225	49	125	665	131	1049	996	75	4484
1981	508	421	225	245	48	125	662	130	1052	1000	75	4513
1982	508	421	183	252	47	126	652	128	1055	994	75	4445
1983	508	421	176	246	47	128	651	127	1063	996	75	4442
1984	508	421	179	220	47	130	651	127	1068	999	75	4453
1985	508	421	184	224	48	134	662	129	1087	1014	75	4481
1986	507	421	216	313	50	140	692	135	1125	1052	75	4730
1987	507	421	308	386	52	143	712	140	1193	1092	75	5033
1988	506	421	495	412	53	145	725	142	1276	1132	75	5385
1989	506	421	551	246	53	145	725	142	1299	1147	75	5314
1990	505	421	608	244	54	148	742	145	1356	1162	75	5486
1991	505	421	608	245	54	149	747	146	1367	1202	75	5543
1992	504	421	642	250	55	152	761	148	1426	1230	75	5625
1993	504	421	642	251	56	152	765	149	1455	1248	75	5721
1994	503	421	642	252	56	152	770	150	1486	1268	75	5773
1995	503	421	642	256	56	154	777	151	1527	1294	75	5867
2000	499	421	816	295	59	162	825	160	1809	1455	75	6374
2005	494	421	836	303	68	167	859	163	2007	1589	75	6987
2010	487	421	805	312	61	172	898	170	2219	1737	75	7374
2015	484	421	460	272	65	175	916	175	2264	1811	75	7119

Source: Mountain West Research - North, Inc., December, 1992

Note: Details may not sum due to rounding.

Table 6.6.2.1 - 2  
Cumulative Scenario Forecast  
Employment by Type  
by Place of Residence  
Big Horn County

		Basic			Basic	Project	Project	
		Non	Basic	Non	Indirect	Project	Project	
Year	Total	Basic	Total	Project	Basic	O&M	Construc- tion-Perm	Construc- tion-NLoc.
1980	4484	2204	2280	2017	0	227	35	0
1981	4506	2211	2295	2028	0	215	51	0
1982	4449	2171	2277	2039	0	175	62	0
1983	4442	2163	2278	2050	0	170	57	0
1984	4430	2158	2272	2063	0	176	32	0
1985	4490	2200	2290	2076	0	181	29	2
1986	4730	2289	2440	2109	0	213	105	11
1987	5033	2403	2629	2147	0	306	164	11
1988	5386	2527	2858	2183	0	492	177	5
1989	5314	2526	2787	2220	0	549	16	0
1990	5486	2615	2870	2261	0	604	3	0
1991	5543	2631	2912	2303	0	604	3	0
1992	5668	2680	2987	2344	0	638	3	0
1993	5721	2691	3029	2386	0	638	3	0
1994	5778	2705	3072	2430	0	638	3	0
1995	5860	2739	3120	2477	0	638	3	0
2000	6579	3036	3542	2725	1	812	3	0
2005	6987	3145	3839	3010	0	826	3	0
2010	7374	3252	3807	3326	0	792	3	0
2015	7119	3080	4039	3589	0	447	3	0

Source: Mountain West Research - North, Inc., December, 1982

Notes: Details may not sum due to rounding.

"Basic project O & M" and "Indirect Basic" represent direct and indirect basic coal mining employment, respectively. No mines are assumed to operate in 2015.



Table 6.6.2.1 - 3  
Cumulative Scenario Forecast  
Population Change  
Big Horn County

Year	Total Population	Births	Deaths	Employment- Related Migration	Non-employment Related Migration	Total Change
1980	12180	0	0	0	0	0
1981	12325	293	120	2	-28	145
1982	12421	291	124	-44	-27	96
1983	12536	298	124	-35	-24	114
1984	12655	287	125	-19	-23	118
1985	12802	288	123	6	-24	147
1986	12980	282	124	46	-25	178
1987	13238	284	126	126	-26	257
1988	13426	283	133	64	-26	188
1989	13543	284	134	-6	-26	117
1990	13797	275	136	140	-25	254
1991	13912	274	138	2	-22	114
1992	14135	275	139	108	-21	223
1993	14250	277	139	2	-25	115
1994	14389	273	144	32	-23	138
1995	14531	280	145	32	-24	142
2000	15305	294	159	18	-27	126
2005	16011	297	167	43	-25	168
2010	16924	304	176	69	-25	172
2015	18004	339	190	68	-25	192

Source: Mountain West Research - North, Inc., December, 1982

Notes: Details may not sum due to rounding.

All values except total population represent annual changes.



Table 6.6.2.1 - 4  
Cumulative Scenario Forecast  
Personal Income  
Big Horn County  
(Thousands of 1980 Dollars)

Year	Total Labor Income	FICA Payments	Non-labor Income	Residence Adjustment	Total Personal Income	Personal Income Per Capita (1980 \$)
1980	62924	4905	20703	5	78728	6464
1981	63637	4961	20967	5	79649	NC
1982	61444	4790	20712	5	77372	NC
1983	60940	4750	20763	5	76957	NC
1984	60578	4722	20747	5	76608	NC
1985	62898	4903	21077	5	79078	NC
1986	66919	5216	21644	5	83352	NC
1987	74523	5809	22804	5	91524	NC
1988	84197	6563	24376	5	102015	NC
1989	84199	6563	24398	5	102039	NC
1990	90212	7032	25295	5	108480	7863
1991	90939	7089	25507	5	109362	NC
1992	93842	7315	25817	5	112349	NC
1993	94495	7366	25919	5	113054	NC
1994	95332	7431	26070	5	113976	NC
1995	97483	7599	26543	5	116432	NC
2000	118697	9253	30226	5	139675	9126
2005	124359	9693	31979	5	146642	NC
2010	129678	10109	34240	5	153808	9088
2015	108696	8474	31796	5	132018	7332

Source: Mountain West Research - North, Inc., December, 1982

Notes: Details may not sum due to rounding.

The personal and per capita income figures do not include Crow dividends from royalties and a possible Crow severance tax

NC means not calculated.

As shown in Table 6.6.2.2-1, the non-Indian population in Hardin is forecast to increase from 2,632 people in 1980 to 2,832 people in 1990, an increase of 8 percent during the period when the KME, Consol, and Youngs Creek mine construction and operations work forces reach their peaks. Total city population is forecast to increase from 3,215 people to 3,531 people in the 1980-1990 period. The Hardin area (excluding the city) is forecast to increase from 978 persons in 1980 to 993 persons in 1990, an increase of only 1 percent. Although the Decker area population is forecast to decline from 205 persons in 1980 to 196 persons in 1983, it would increase to 331 persons in 1990 under the cumulative scenario.

After 1990, the non-Indian population of the city of Hardin and the Hardin area (excluding the city) is forecast to increase steadily. By 2015, the non-Indian population of Hardin is forecast to be 3,451 persons, an increase of 31 percent over the 1980 level, while total city population is expected to reach 4,454 persons by 2015, an increase of 38.5 percent over the 1980 level. The Hardin area (excluding the city) is forecast to grow to 1,171 persons in 2015, a 20 percent increase over its 1980 population. The Decker area population between 1990 and 2015 is forecast to increase to a peak of 384 people in 1998 but then decline to 292 persons by 2015, when mining activity at local mines has decreased from the 1990-2010 level.

### 6.6.3 Sheridan County and Communities

This section presents the level of economic/demographic activity resulting from the cumulative scenario for Sheridan County and its subcounty areas. Section 6.6.3.1 discusses employment, population, and income levels for Sheridan County. Section 6.6.3.2 presents population levels for subcounty areas.

#### 6.6.3.1 Sheridan County

As shown in Table 6.6.3.1-1, employment under the cumulative scenario is forecast to rise from 12,510 persons in 1982 to 16,552 persons in 1990, a 32 percent increase over the eight-year period during which the KME, Consol 1, and Youngs Creek construction and operations work forces reach their peaks. After 1990, total employment is forecast to increase more slowly, growing by 17 percent between 1990 and 2000 and by 5 percent between 2000 and 2010. Total 2015 employment of 18,681 persons represents a 44 percent increase over total employment in 1980.

Both basic and nonbasic employment are forecast to exhibit the same growth patterns as total employment (see Table 6.6.3.1-2). However, the ratio of nonbasic employment to basic employment is forecast to decline from 126 to 100 in 1980 to 118 to 100 in 1990 after the three mines' operations employment has peaked. This decline continues through 2015, when the nonbasic/basic employment ratio is forecast to be 113 to 100.

The population projections for the cumulative scenario exhibit the same pattern as the employment forecast. As shown in Table 6.6.3.1-3, Sheridan County's population is forecast to grow by 33 percent during the 1980s, by 11 percent during the 1990s and by 3 percent during the first decade of the 2000s. The 2015 population of 35,243 people represents a 40 percent increase over the 1980 population and implies an average annual growth rate of 1 percent.

As shown in Table 6.6.3.1-4, total personal income in constant 1980 dollars under the cumulative scenario is forecast to increase from \$279 million in 1980 to \$405 million in 2015, a 45 percent increase. However, commensurate population increases keep per capita personal income from increasing at a similar rate. Per capita personal income is forecast to decrease from \$11,125, in 1980 to \$10,560 by 1990. It is then forecast to increase to \$10,947 by 2000 and \$11,492 by 2015.

TABLE 6.6.2.2-1

Cumulative Scenario Population Forecast  
Big Horn County Allocation Areas

Year	City of Hardin (total)	City of Hardin (non-Indian)	Hardin Area (excluding city)	Decker/Spring Creek Area
1980	3,215	2,632	978	205
1981	3,242	2,646	977	207
1982	3,245	2,637	969	203
1983	3,256	2,635	962	196
1984	3,270	2,638	958	197
1985	3,300	2,656	956	202
1986	3,333	2,678	956	235
1987	3,374	2,708	963	322
1988	3,425	2,747	972	327
1989	3,444	2,755	970	320
1990	3,531	2,832	993	331
1991	3,549	2,841	992	332
1992	3,626	2,908	1,011	340
1993	3,645	2,917	1,009	341
1994	3,681	2,943	1,014	343
1995	3,715	2,967	1,019	345
1996	3,758	2,999	1,026	352
1997	3,827	3,058	1,039	377
1998	3,859	3,080	1,043	384
1999	3,875	3,085	1,040	374
2000	3,896	3,095	1,041	374
2005	4,046	3,182	1,075	366
2010	4,254	3,335	1,128	355
2015	4,454	3,451	1,171	297

Source: Mountain West Research-North, Inc., 1983.

Note: Details may not sum due to rounding.

TABLE 6.6.3.1-1

Cumulative Scenario Forecast  
Total Employment by Sector by Place of Residence  
Sheridan County

Year	Ag Propri etors	Ag Labor	Mining	Con struc tion	Manu factu ring	TCPU	Trade	FIRE	Ser vices	Gov ern ment	Other +com.	Total
1980	509	440	1151	1612	523	503	2814	500	2314	2464	104	12934
1981	509	440	1159	1347	519	510	2802	495	2311	2420	104	12618
1982	509	440	1044	1330	518	536	2809	493	2322	2403	104	12510
1983	509	440	943	1317	519	543	2824	491	2338	2393	104	12425
1984	509	440	1077	1319	537	596	2913	499	2402	2471	104	12869
1985	509	440	1209	1439	560	619	3027	510	2482	2577	104	13480
1986	508	440	1443	1733	599	670	3223	531	2612	2773	104	14640
1987	507	440	1892	1735	640	750	3414	552	2745	2973	104	15755
1988	506	440	2085	1567	660	789	3504	560	2814	3045	104	16078
1989	505	440	2195	1436	673	838	3570	564	2862	3088	104	16279
1990	504	440	2220	1433	689	875	3650	569	2922	3143	104	16552
1991	503	440	2219	1437	696	894	3699	572	2967	3176	104	16710
1992	502	440	2216	1442	704	901	3753	575	3014	3211	104	16865
1993	501	440	2213	1445	712	907	3804	578	3059	3239	104	17005
1994	500	440	2186	1448	719	913	3852	580	3102	3263	104	17110
1995	499	440	2204	1454	729	920	3915	584	3156	3306	104	17316
2000	494	440	2600	1521	825	1099	4441	625	3556	3715	104	19423
2005	489	440	2332	1488	833	1111	4647	622	3778	3815	104	19479
2010	484	439	1871	1555	888	1136	5041	652	4140	4029	104	20348
2015	479	439	825	1487	837	1003	4962	614	4156	3775	104	18681

Source: Mountain West Research-North, Inc., 1982.

Note: Details may not sum due to rounding.

TABLE 6.6.3.1-2

Cumulative Scenario Forecast  
Employment by Type by Place of Residence  
Sheridan County

Year	Total	Non Basic	Basic Non Total	Basic Non Project	Indirect Basic	Basic Project O&M	Project Construc- tion-Perm	Project Construc- tion-NLoc.
1980	12934	7208	5725	4297	51	1014	92	268
1981	12618	7061	5557	4465	53	1022	4	12
1982	12510	6981	5528	4567	55	905	0	0
1983	12425	6925	5499	4637	58	803	0	0
1984	12869	7125	5744	4737	71	935	0	0
1985	13460	7410	6069	4815	87	1066	44	55
1986	14640	7959	6681	4904	122	1299	140	214
1987	15755	8525	7229	5023	135	1747	102	220
1988	16078	8726	7352	5127	140	1938	42	103
1989	16279	8821	7457	5248	150	2047	3	8
1990	16552	8962	7590	5356	162	2070	0	0
1991	16710	9028	7681	5455	157	2068	0	0
1992	16865	9101	7764	5543	157	2063	0	0
1993	17005	9154	7851	5634	158	2059	0	0
1994	17110	9192	7917	5728	158	2030	0	0
1995	17316	9289	8026	5821	157	2047	0	0
2000	19423	10346	9076	6439	204	2433	0	0
2005	19479	10357	11325	7012	152	1958	0	0
2010	20348	10868	9487	7653	144	1690	0	0
2015	18681	9915	8766	8081	41	644	0	0

Source: Mountain West Research-North, Inc., 1982.

Notes: Details may not sum due to rounding. "Basic project O&M" and "Indirect Basic" represent direct and indirect basic coal mining employment, respectively. No mines are assumed to operate in 2015.



TABLE 6.6.3.1-3

Cumulative Scenario Forecast  
Population Change  
Sheridan County

Year	Total Population	Births	Deaths	Employment- Related Migration	Non-employment Related Migration	Total Change
1980	25040	0	0	0	0	0
1981	26197	435	210	1026	-93	1157
1982	26358	458	213	33	-116	161
1983	26469	445	212	0	-121	110
1984	26568	432	212	0	-119	99
1985	27601	418	210	936	-111	1033
1986	30092	421	214	2391	-106	2491
1987	32356	451	218	2144	-113	2263
1988	32793	482	223	299	-121	436
1989	33093	476	226	174	-123	300
1990	33537	465	228	332	-125	444
1991	33662	455	231	29	-128	125
1992	33846	443	232	96	-122	184
1993	33976	438	234	49	-123	130
1994	34040	429	237	0	-127	64
1995	34182	415	239	96	-131	141
2000	37272	454	257	123	-143	176
2005	37003	449	264	134	-137	182
2010	38480	446	300	434	-123	456
2015	35243	412	280	-91	-117	-76

Source: Mountain West Research-North, Inc., 1982.

Notes: Details may not sum due to rounding. All values except total population represent annual changes.



TABLE 6.6.3.1-4

Cumulative Scenario Forecast  
Personal Income  
Sheridan County  
(1980 \$000)

Year	Total Labor Income	FICA Payments	Non-labor Income	Residency Adjustment	Total Personal Income	Personal Income Per Capita (1982 \$)
1980	183035	8342	103881	1	278575	11125
1981	175762	8011	102496	1	270249	10316
1982	171928	7836	102019	1	266112	10095
1983	168597	7684	101797	1	262711	9925
1984	177163	8075	103268	1	272359	10251
1985	188964	8613	105302	1	285656	10349
1986	212608	9690	109442	1	312362	10379
1987	235480	10733	113841	1	338590	10464
1988	240797	10975	115386	1	345210	10527
1989	244275	11134	116218	1	349361	10556
1990	248065	11306	117395	1	354155	10560
1991	250001	11395	117988	1	356596	10593
1992	251773	11475	118521	1	358821	10601
1993	253368	11548	118719	1	360541	10611
1994	253997	11577	119017	1	361440	10617
1995	256841	11706	119772	1	364909	10675
2000	291823	13301	129508	1	408032	10947
2005	290516	13245	139633	1	416903	11267
2010	297205	13550	152600	1	436255	11337
2015	264174	12045	152896	1	405024	11492

Source: Mountain West Research-North, Inc., 1982.

Note: Details may not sum due to rounding.

#### 6.6.3.2 Subcounty Area Population Forecasts

As shown in Table 6.6.3.2-1, all of Sheridan County's subareas are forecast to experience steady population growth under the cumulative scenario. The city of Sheridan is forecast to grow from 15,139 people in 1980 to 20,264 people in 1990, a 34 percent increase over the period during which the KME, Consol, and Youngs Creek construction and operations work forces reach their peaks. The greater Sheridan area is forecast to rise from 5,016 people in 1980 to 7,270 people in 1990, a 45 percent increase. The Ranchester-Dayton area population is forecast to rise from 1,841 people in 1980 to 2,493 people in 1990, a 35 percent increase. And finally, the rest of the Sheridan County is forecast to grow from 3,508 people in 1980 to 3,440 people in 1990, a 15 percent increase.

After 1990, the populations of all Sheridan County subcounty areas are forecast to grow more slowly. The city of Sheridan is forecast to grow by 12 percent during the 1990s and by 3 percent during the first decade of the 2000s. The city of Sheridan's 2015 population of 21,478 people would be below the 2010 population but 42 percent above the 1980 population. The greater Sheridan area is forecast to grow by 13 percent during the 1990s and by 1 percent between 2000 and 2010. Its 2015 population of 7,407 people is below the 8,355-person level of 2010, but represents a 48 percent increase over the 1980 population. The Ranchester-Dayton area's population is forecast to grow by 11 percent during the 1990s and then stabilize at about 2,700 people through 2010. The 2015 forecast population of 2,504 people would be 36 percent above the 1980 population. The rest of Sheridan County is forecast to remain stable at about 3,500 people during the 1990s and then rise to 3,854 people in 2015, a 27 percent increase over the 1980 population.

TABLE 6.6.3.2-1

Cumulative Scenario Population Forecast  
Sheridan County Allocation Areas

Year	Sheridan County	Sheridan City	Greater Sheridan Area	Ranchester/ Dayton Area	Rest of County
1980	25,040	15,139	5,016	1,841	3,042
1981	26,197	15,709	5,295	1,893	3,299
1982	26,358	15,795	5,339	1,906	3,317
1983	26,469	15,853	5,370	1,919	3,325
1984	26,568	15,903	5,397	1,933	3,333
1985	27,601	16,617	5,610	2,013	3,360
1986	30,092	18,214	6,294	2,198	3,385
1987	32,356	19,532	7,010	2,386	3,427
1988	32,793	19,770	7,132	2,435	3,454
1989	33,093	19,951	7,198	2,464	3,479
1990	33,537	20,264	7,270	2,493	3,508
1991	33,662	20,341	7,303	2,508	3,508
1992	33,846	20,463	7,345	2,523	3,514
1993	33,976	20,546	7,377	2,536	3,517
1994	34,040	20,584	7,396	2,545	3,513
1995	34,182	20,681	7,427	2,558	2,514
1996	34,670	21,016	7,544	2,588	3,521
1997	36,180	21,996	7,956	2,688	3,538
1998	36,800	22,363	8,151	2,744	3,540
1999	37,096	22,547	8,207	2,768	3,573
2000	37,272	22,673	8,243	2,779	3,577
2005	37,003	22,533	8,120	2,664	3,685
2010	38,480	23,437	8,355	2,761	3,927
2015	35,243	21,478	7,407	2,504	3,854

Source: Mountain West Research-North, Inc., 1983.

Note: Details may not sum due to rounding.

7. KME MINE: SITE-SPECIFIC  
IMPACT ANALYSIS



## 7. KME MINE: SITE-SPECIFIC IMPACT ANALYSIS

### 7.1 Introduction

This chapter presents the impact forecasts for the study region under the KME Mine site-specific scenario. The impact forecasts are presented for the region, its counties, and its communities and jurisdictions, with emphasis placed on the communities and jurisdictions that would be most affected by the KME Mine.

For each entity, population, economic, social life and cultural diversity, housing, facilities/services, and fiscal forecasts are presented. In addition, transportation, outdoor recreation, and land use forecasts are presented on a regional level.

The chapter is organized into six sections. Section 7.2 presents the assumptions used to make the KME Mine scenario impact forecasts. Section 7.3 presents the impact forecasts for the region. Section 7.4 presents the impact forecasts for Big Horn County and its communities. The impact forecasts for the Crow and Northern Cheyenne Indian Reservations are presented in sections 7.5 and 7.6, respectively. Section 7.7 presents the impact forecasts for Sheridan County and its communities.

### 7.2 Assumptions

The assumptions used to develop the impact forecasts for the site-specific scenario are discussed in chapters 2 and 5 and are not repeated here. In addition, the population and employment forecasts for the KME Mine scenario presented in Chapter 6 are utilized throughout this analysis.

### 7.3 Overview of Impacts

#### 7.3.1 Introduction

This section, which is divided into eight subsections, presents an overview of the impacts that are forecast to occur at the regional level under the KME Mine scenario. Section 7.3.2 presents the population and economic impact forecasts. Section 7.3.3 discusses the effects of the KME Mine on social life and cultural diversity. A summary of housing impacts forecast for the region is presented in Section 7.3.4. Facilities/services and fiscal impact forecasts are discussed in sections 7.3.5 and 7.3.6, respectively. Section 7.3.7 addresses the impacts of the KME Mine scenario on the region's transportation network. Finally, sections 7.3.8 and 7.3.9 present an analysis of outdoor recreation and land use conditions under the KME Mine scenario.

#### 7.3.2 Population and Economy

The KME Mine's population effects in the study region would begin in 1985 and end in 2008. During the 1985 to 1987 construction period, the population impact is forecast to reach a maximum of 1,302 people in 1987, when both construction and operations work forces would be present (see Table 7.3.2-1). During the operations period, which would begin in 1987, the population effects are forecast to reach about 1,200 people by 1989 when the total regional population would reach 42,994 people, and then remain relatively constant through 2003. After 2003, the population impact is forecast to decline to 62 people by 2007, when the mine is scheduled to have ceased operations. No population impacts are forecast from 2008 to



TABLE 7.3.2-1  
KME Scenario Impact  
Population  
Study Region

Year	Total Population	Births	Deaths	Employment- Related Migration	Non-employment Related Migration	Total Change
1980	0	0	0	0	0	0
1981	0	0	0	0	0	0
1982	0	0	0	0	0	0
1983	0	0	0	0	0	0
1984	0	0	0	0	0	0
1985	442	0	0	442	0	442
1986	1003	7	0	555	0	560
1987	1302	15	1	287	-1	299
1988	1185	24	2	-136	-2	-117
1989	1206	21	2	4	-2	20
1990	1207	21	3	-14	-2	1
1991	1206	20	3	-15	-2	-1
1992	1200	18	3	-18	-2	-5
1993	1200	17	3	-11	-2	-0
1994	1209	16	3	-0	-2	9
1995	1191	16	4	-27	-2	-18
2000	1166	13	5	-8	-3	-3
2005	771	10	6	-236	-2	-235
2010	0	0	0	0	0	0
2015	0	0	0	0	0	0

Source: Mountain West Research-North, Inc., 1982.

Notes: Details may not sum due to rounding. All values except total population represent annual changes.

2015. At its peak, therefore, the population effect of the KME Mine would account for about 2.8 percent of the total population of the region.

As shown in Table 7.3.2-2, the total employment effects of the KME Mine during the construction period would be 244 workers in 1985, 592 workers in 1986, and 650 workers in 1987, when operations of the mine would commence. The total regional employment in 1987 is forecast to be 19,001 workers. Project effects therefore would account for about 3.4 percent of the total. Total employment effects during the operations period are forecast to increase from 602 workers in 1988 to 626 workers in 2003 and then decline to 45 workers by 2015. As shown in the table, the largest employment increases are forecast to occur in the mining and construction sectors, which in turn stimulate employment in the other sectors. As shown in Table 7.3.2-3, the employment effects noted above would be about evenly divided between basic and nonbasic jobs in all of the forecast years.

Table 7.3.2-4 presents the income effects of the KME Mine. As shown, the total personal income that would accrue to study region residents as a result of the KME Mine would peak at \$16.2 million per year during the construction period, fall back to 15.2 million and then grow steadily to \$16 million per year through 2004. During this period, project-related personal income would constitute approximately 4 percent of total personal income in the region. Total personal income would decline after the KME Mine is closed, but would remain at \$2.3 million per year through 2015. In 1990, the project is forecast to raise per capita personal income from \$9,103 (baseline) to \$9,203, a difference of \$100, or 1.1 percent. In 2000, the difference between the per capita income forecast for the KME and the baseline scenarios is \$122. In 2010, this difference is forecast to have fallen to \$48. These figures do not include dividend payments from Crow coal royalties.

### 7.3.3 Social Life and Cultural Diversity

The anticipated effects of the KME Mine operations on the social life and cultural diversity of the non-Crow areas of the study region are slight. The proposed mine will bolster the area economy, as discussed in Section 7.3.2, and will generate additional revenues for the state of Montana, for Big Horn County, and for the city and county of Sheridan without increasing the population of these areas by a large increment. Coal mining of the nature proposed for the KME Mine is already an established activity in the study area. Consequently, at the levels proposed, it will have only nominal effects on the economic, political, or social diversity and complexity of the study region, with the possible exception of the rural Decker communities (see Section 7.4.4.3 below).

Continuation of coal mining activities in the region should maintain or supplement the outside linkages that area governments, businesses, and individuals have established; projected activity has already been influential in the decision of one of the major participants in the area (NERCO) to locate a regional headquarters in Sheridan. It is anticipated that similar consolidation and expansion of corporate activities will continue under this scenario. The linkages between industry and government will probably become firmer, as both parties gain experience in collaborative planning and response.

The continuation of mining and the sustenance of mining level incomes will continue the trends toward alteration of the local stratification systems that were initiated during the 1970s, although the extent of the change will be subdued since coal mining has had such a long tradition in the region (see discussion in chapters 3 and 4). The presence of the KME Mine is expected to slightly supplement the trend toward greater governmental participation and increasing social and political influence by nonranchers and those with limited (or completely without) familial ties to longtime community elites.

The potential of additional mining -- and its realization -- will probably encourage area residents and their governmental representatives to pursue issues of planning and coordination. Those who are opposed to coal mining and to further growth in the area -- an acknowledged minority -- will dislike the

TABLE 7.3.2-2

KME Scenario Impact  
Total Employment by Sector  
Study Region

Year	Ag Propri etors	Ag Labor	Min ing	Con struc tion	Manu factu ring	TCPU	Trade	FIRE	Ser vices	Gov ern ment	Other +com.	Total
1980	0	0	0	0	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0	0	0	0	0
1984	0	0	0	0	0	0	0	0	0	0	0	0
1985	0	0	0	127	7	7	38	4	21	38	0	244
1986	0	0	0	313	16	17	87	12	51	93	0	592
1987	0	0	235	86	18	36	91	12	61	107	0	650
1988	0	0	265	18	18	43	87	11	57	100	0	602
1989	0	0	265	18	18	43	88	11	57	101	0	604
1990	0	0	265	18	18	43	88	11	57	101	0	605
1991	0	0	265	18	18	43	88	11	58	102	0	607
1992	0	0	265	18	18	43	89	11	58	102	0	608
1993	0	0	265	19	18	43	90	12	58	103	0	611
1994	0	0	265	19	19	44	90	12	59	104	0	613
1995	0	0	265	19	19	44	91	12	59	105	0	616
2000	0	0	265	20	19	45	94	12	61	109	0	627
2005	0	0	195	15	12	15	64	9	45	81	0	439
2010	0	0	0	2	2	2	12	1	8	15	0	45
2015	0	0	0	2	2	2	12	1	8	15	0	45

Source: Mountain West Research-North, Inc., 1982.

Note: Details may not sum due to rounding.

TABLE 7.3.2-3

KME Scenario Impact  
Employment by Type  
Study Region

Year	Total	Non Basic	Basic Total	Basic Non Project	Indirect Basic	Basic Project O&M	Project Construc- tion-Perm	Project Construc- tion-NLoc.
1980	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0
1984	0	0	0	0	0	0	0	0
1985	244	116	127	0	9	0	63	55
1986	592	284	307	0	15	0	156	135
1987	650	323	326	17	7	235	36	31
1988	602	301	301	25	11	265	0	0
1989	604	302	301	25	11	265	0	0
1990	605	304	301	25	11	265	0	0
1991	607	306	301	25	11	265	0	0
1992	608	306	301	25	11	265	0	0
1993	611	310	301	25	11	265	0	0
1994	613	312	301	25	11	265	0	0
1995	616	314	301	25	11	265	0	0
2000	627	326	301	25	11	265	0	0
2005	439	244	195	0	0	195	0	0
2010	45	45	0	0	0	0	0	0
2015	45	45	0	0	0	0	0	0

Source: Mountain West Research-North, Inc., 1982.

Notes: Details may not sum due to rounding. "Basic project O&M" and "Indirect Basic" represent direct and indirect basic coal mining employment, respectively. No mines are assumed to operate in 2015.

TABLE 7.3.2-4

KME Scenario Impact  
Personal Income  
Study Region

Year	Total Labor Income	FICA Payments Payments	Non-labor Income	Residency Adjustment	Total Personal Income	Personal Income Per Capita (1980 \$)
1980	0	0	0	0	0	0
1981	0	0	0	0	0	0
1982	0	0	0	0	0	0
1983	0	0	0	0	0	0
1984	0	0	0	0	0	0
1985	5137	266	783	0	5654	NC
1986	12491	651	1942	0	13783	NC
1987	14499	721	2401	0	16179	NC
1988	13469	660	2364	0	15173	NC
1989	13480	660	2419	0	15238	NC
1990	13501	661	2482	0	15322	100
1991	13522	662	2547	0	15407	NC
1992	13498	661	2612	0	15449	NC
1993	13573	665	2701	0	15609	NC
1994	13604	666	2792	0	15730	NC
1995	13637	668	2884	0	15852	NC
2000	13780	674	3315	0	16421	122
2005	9720	477	3045	0	12288	NC
2010	582	27	1745	0	2301	48
2015	582	27	1802	0	2358	49

Source: Mountain West Research-North, Inc., 1982.

Notes: Details may not sum due to rounding. The personal and per capita figures do not include Crow dividends from royalties and a possible Crow severance tax. NC = not calculated.



persistence of the trends toward greater governmental control and planning of the 1970s, but most residents of the area will be relieved that the depressed economy of the early 1980s has been revitalized. Those who are pressing for greater emphasis on planning and cooperation between local jurisdictions will appreciate the added impetus provided by the impending population growth and additional development. Project effects on perceptions of and satisfaction with the community are discussed in the county and community sections that follow.

Aside from the changes in material well being that are described in other sections of this chapter (increased employment and income, changes in facilities and services, and housing availability), the incremental change in demographic and social characteristics of the community due to the KME project are sufficiently small that no effect on the behavioral indicators such as crime and suicide can be forecast with any satisfactory degree of confidence. These indicators are expected to be much more affected by changes in baseline conditions (including national trends) than by the project.

#### 7.3.4 Housing

Under the KME scenario, housing deficits which can be attributed to direct and indirect population growth from the KME Mine would be limited to Big Horn County between 1988 and 1998 and peak at 15 housing units. It is highly probable that these deficits could be made up by contractors from Billings who have previously demonstrated their willingness to construct housing in Big Horn County. In addition, it is possible that Crow Indian contractors would be available to construct houses and that local non-Indian construction contractors could expand their capacities. More specific discussion of the effect of the project on housing demand and availability is provided at the county and subcounty level.

#### 7.3.5 Facilities and Services

Because no facilities or services are provided on the regional level, facilities/services impacts are presented below under separate jurisdictional headings.

#### 7.3.6 Fiscal

The revenues that would accrue to the state of Montana and the royalties that would accrue to the federal government under the KME scenario were described in Section 4.3.6. Other fiscal impact forecasts for counties, cities, and jurisdictions are presented below.

#### 7.3.7. Transportation

Transportation impacts from the KME Wolf Mountain Mine would reach their maximum during the peak production period, 1989 to 1997. At this time, both rail and commuting worker traffic would be at their peak levels. During the mine construction period, lesser impacts would be experienced with most of the mine's heavy equipment being brought to the site by rail and few trips required.

##### 7.3.7.1 Rail

As explained in Section 4.3.7.1, unit train shipments from the KME Mine would reach a peak of about six per week in 1989. Half of these would proceed southeast and half to the north. The increase would be equivalent to less than 10 percent over present levels on the BN main line from Huntley to Sheridan and



about 20 percent from Sheridan toward Clearmont. Such a level of increase would not be significant given present low levels of traffic and the lines' service capacities.

#### 7.3.7.2 Road

The primary effect of the mine's development on the road network would be an increase in commuter traffic (mine workers), largely between the mine and Sheridan. Forecasts of the consequent traffic increase and the related impacts will be provided by the Montana Department of Highways.

In the absence of a road from Lodge Grass to the Decker area, Crow employment would be relatively low due to the commuting distance -- over 70 miles one-way to Crow Agency. Moreover, Crow Reservation resident workers would primarily use the I-90 to Wyoming 339 route. At the same time, employment of individuals living on the Northern Cheyenne Reservation would remain relatively low (an estimated peak of five workers), implying no significant traffic or road impacts due to the proposed action.

#### 7.3.8 Outdoor Recreation

Under the KME Mine scenario, forecast demand for each type of outdoor recreation activity in Sheridan County would be 4 percent above baseline for the years 1990 and 2000. From 2010 to 2015, the percentage above baseline would drop to zero. In Big Horn County, no differences are forecast between baseline and with-project conditions (see tables 4.3.8-1 and 4.3.8-2). Based on this analysis, it appears that the population increases associated with the KME Mine could have a very slight effect on already crowded and popular recreation sites in Sheridan County if the new residents' activity and site preferences are similar to those of current residents. If, however, recreationists would choose to distribute themselves or area management strategies would result in a more even distribution among available recreation areas, then adequate resources are available.

Section 4.3.8 thoroughly discusses current recreation conditions, demand for certain activities, and management concerns.

#### 7.3.9 Land Use

##### 7.3.9.1 On-site Impacts

Primary on-site effects of the KME Mine would be the disturbance of a total of 1,466 acres within the permit area over the life of the project. These 1,466 acres are presently in agricultural use with approximately 1,261 acres in grassland, 151 acres in improved pasture, and 54 acres in irrigated hayland. The permit area is transversed by a creek. Gradually, over a twenty-five-year period, land used for mining operations and support facilities would be returned to agricultural uses according to the KME reclamation plan. The agricultural production of the reclaimed land would differ somewhat from the initial uses with 492 acres of improved pasture, 917 acres of grassland, 28 acres of irrigated hayland, and 29 acres of alkali fields (Watts and Ingebrigtsen 1983).

Secondary impacts in the study area resulting from population and employment growth attributable to the KME project are described below.

#### 7.3.9.2 Big Horn County

Table 4.3.9.2-1 outlines the urban residential, rural residential, and commercial land use impacts forecast for the KME scenario in Big Horn County. The demand for three acres of urban residential land in the Hardin area from 1990 to 2005 represents little variation in residential requirements. Even so, by 1996, combined baseline and with-project demand will exceed present available land. It is expected that the ensuing impacts will be insignificant given Hardin's policies for future growth. The maximum incremental requirement for ten and three acres of rural residential and commercial lands, respectively, are relatively insignificant and are not expected to pose any problem.

#### 7.3.9.3 Sheridan County

Sheridan County would experience greater incremental demands for urban residential, rural residential, and commercial land uses than Big Horn County under the KME forecast. Urban residential land needs due to the project are forecast to peak in the year 2000 at 95 acres, then drop quickly to zero by 2010. The temporary need for these 95 acres would be within existing urban residential capacities. Maximum incremental needs for rural residential lands under this scenario are forecast to be 77 acres in year 2000. Additionally, the project would create a demand for 12 acres of land for commercial use.

### 7.4 Big Horn County and Communities

#### 7.4.1 Introduction

This section presents the KME Mine impact forecasts for Big Horn County and its non-reservation sub-county areas. Section 7.4.2 presents the forecasts for the county. Section 7.4.3 presents the forecasts for Hardin and the Hardin area, and Section 7.4.4 presents the forecasts for the Decker/Spring Creek area. Subsequent sections discuss the impact forecasts for the Crow and Northern Cheyenne Indian Reservations. The non-Indian residents of Big Horn County, including those of the Crow and Northern Cheyenne Indian Reservations, are considered as part of the county-wide population and economy forecasts presented in Section 7.4.2.1.

#### 7.4.2 Big Horn County

##### 7.4.2.1 Population and Economy

As shown in Table 7.4.2.1-1, the effects of the KME Mine on the Big Horn County population would begin in 1985 and end in 2009. During the 1985 to 1987 construction period, the population effects of the Mine are forecast to reach a maximum of eleven people. During the operation period, which would begin in 1987, the population effects are forecast to reach about sixty people (less than 1 percent) by 1989 and then remain relatively constant through 2000. After 2000, the population effects are forecast to decline to forty-six people by 2005 and to disappear by 2010, when the mine is scheduled to have ceased operations.

As shown in Table 7.4.2.1-2, the total employment impact under the KME scenario during the construction period would be 45 workers in 1985, 114 workers in 1986, and 79 workers in 1987, when operations of the mine would commence. Total employment effects during the operations period are forecast to remain constant at 60 workers through 2000 and then decline to 43 workers by 2005. As shown in the table, the largest employment increases are forecast to occur in the mining and construction sectors, which in turn stimulate employment in the other sectors. It should be noted that because most of the new Big Horn County jobs created by the KME Mine would be held by current Big Horn County residents, the employment effects discussed here far exceed the change in population discussed above.

Table 7.4.2.1 - 1  
KME Scenario Impacts  
Population  
Bis Horn County

Year	Total Population	Births	Deaths	Employment- Related Migration	Non-employment Related Migration	Total Change
1980	0	0	0	0	0	0
1981	0	0	0	0	0	0
1982	0	0	0	0	0	0
1983	0	0	0	0	0	0
1984	0	0	0	0	0	0
1985	4	0	0	4	0	4
1986	11	0	0	6	0	6
1987	2	0	0	-8	0	-8
1988	38	0	0	35	0	35
1989	56	0	0	16	0	17
1990	57	1	0	0	0	1
1991	58	1	0	0	0	1
1992	58	1	0	0	0	0
1993	59	1	0	0	0	0
1994	60	1	0	0	0	0
1995	60	1	0	0	0	0
2000	61	0	0	0	0	0
2005	46	0	0	-12	0	-12
2010	0	0	0	0	0	0
2015	0	0	0	0	0	0

Source: Mountain West Research - North, Inc., December, 1982

Notes: Details may not sum due to rounding.

All values except total population represent annual changes.

Table 7.4.2.1 - 2  
KME Scenario Impacts  
Total Employment by Sector  
Big Horn County

Year	As Propri etors	As Labor	Min ing	Con struc tion	Manu factu ring	TCPU	Trade	FIRE	Ser vices	Gov ern ment	Other +com.	Total
1980	0	0	0	0	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0	0	0	0	0
1984	0	0	0	0	0	0	0	0	0	0	0	0
1985	0	0	0	23	0	1	7	1	4	6	0	45
1986	0	0	0	59	1	3	19	3	10	16	0	114
1987	0	0	27	15	1	2	11	2	8	10	0	78
1988	0	0	31	2	0	1	8	1	7	7	0	60
1989	0	0	31	2	0	1	8	1	7	7	0	60
1990	0	0	31	2	0	1	8	1	7	7	0	60
1991	0	0	31	2	0	1	8	1	7	7	0	60
1992	0	0	31	2	0	1	8	1	7	7	0	60
1993	0	0	31	2	0	1	8	1	7	7	0	60
1994	0	0	31	2	0	1	8	1	7	7	0	60
1995	0	0	31	2	0	1	8	1	7	8	0	60
2000	0	0	31	2	0	1	8	1	7	8	0	60
2005	0	0	22	0	0	5	1	1	5	4	0	43
2010	0	0	0	0	0	0	0	0	0	0	0	1
2015	0	0	0	0	0	0	0	0	0	0	0	1

Source: Mountain West Research - North, Inc., December, 1982

Note: Details may not sum due to rounding.

As shown in Table 7.4.2.1-3, the incremental employment due to the project would be about evenly divided between basic and nonbasic jobs in all of the forecast years.

Table 7.4.2.1-4 presents the income effects that are forecast to occur under the KME scenario. As shown, the total personal income (excluding royalty and severance tax dividends) that would accrue to Big Horn County residents as a result of the KME Mine would peak at \$2.6 million per year during the construction period and then stabilize at about \$1.5 million per year during the operations period. The project's effect on per capita personal income in 1990 would be to raise it from \$6,325 (baseline) to \$6,409, a difference of \$84. In 2000, the difference between KME scenario and baseline per capita income is forecast to be \$74. By 2010, it is forecast to have fallen to \$2.

#### Commercial opportunities

As shown in Table 7.4.2.1-5, the population and income growth due to the KME Mine would not be sufficient to increase the forecast of commercial opportunities in Big Horn County, leaving commercial opportunities unchanged from baseline levels.

#### 7.4.2.2 Social Life and Cultural Diversity

In Big Horn County as a whole, the incremental effects of the KME Mine would be minimal. Most of the impacts would be concentrated in the Decker-Sheridan area, with the major county-wide consequences being a slight exaggeration of the existing economic structure and increased property tax revenue flows to Big Horn County. Since the great majority of the workers at the KME Mine are expected to reside in Sheridan County, the project will have only marginal income, population, and demographic characteristics effects and will not change the demands on or responsibilities of the Big Horn County government. If further mining enables the county to utilize its revenues or to obtain Coal Board funds to improve facilities or service in the Decker area, the proposed mine could have a beneficial effect on county integration and coordination. If the county does not make these improvements, the residents of the Decker area may lose confidence in and withdraw more completely from participation in county government (see Section 7.4.4.3 for further discussion.)

#### 7.4.2.3 Housing

As shown in Table 7.4.2.3-1, housing deficits under the KME scenario in Big Horn County are forecast to occur during the operations period between 1988 and 1998 and peak at 54 housing units. However, most of this deficit is forecast to result from baseline growth. The housing deficits which can be attributed to the KME Mine occur in the same time period noted above, but peak at only 15 units. More detail on the KME Mine's effect on housing demand and availability in Big Horn subcounty areas is provided in subsequent sections. The actual housing demand forecasts by type of unit for each area under the KME scenario are summarized in tables found in Appendix B. These forecasts do not take into account the effect of increased incomes on housing demand, which is explained more fully in Section 2.3.3.

#### 7.4.2.4 Facilities and Services

As noted above, population effects under the KME scenario would peak at 61 additional residents in 2000 for a 0.4 percent increase over the baseline population. The population impacts decrease after the peak and disappear by 2010. These small population effects are not expected to result in any significant effects on facilities or services.



Table 7.4.2.1 - 3  
KME Scenario Impacts  
Employment by Type  
Big Horn County

Year	Total	Non Basic	Basic Total	Basic Non Project	Indirect Basic	Basic Project O&M	Project Construction-Perm	Project Construction-RLoc.
1980	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0
1984	0	0	0	0	0	0	0	0
1985	45	23	22	0	0	0	19	2
1986	114	58	56	0	0	0	49	6
1987	79	38	41	0	0	27	11	1
1988	60	28	31	-0	0	31	0	0
1989	60	28	31	-0	0	31	0	0
1990	60	28	31	-0	0	31	0	0
1991	60	28	31	-0	0	31	0	0
1992	60	28	31	-0	0	31	0	0
1993	60	28	31	-0	0	31	0	0
1994	60	28	31	-0	0	31	0	0
1995	60	29	31	-0	0	31	0	0
2000	60	29	31	-0	0	31	0	0
2005	43	20	22	-0	0	22	0	0
2010	1	1	0	0	0	0	0	0
2015	1	1	0	0	0	0	0	0

Source: Mountain West Research - North, Inc., December, 1982

Notes: Details may not sum due to rounding.

"Basic project O & M" and "Indirect Basic" represent direct and indirect basic coal mining employment, respectively. No mines are assumed to operate in 2015.



Table 7.4.2.1 - 4  
KME Scenario Impacts  
Personal Income  
Big Horn County  
(Thousands of 1980 Dollars)

Year	Total Labor Income	FICA Payments Payments	Non-labor Income	Residency Adjustment	Total Personal Income	Personal Income Per Capita
1980	0	0	0	0	0	0
1981	0	0	0	0	0	0
1982	0	0	0	0	0	0
1983	0	0	0	0	0	0
1984	0	0	0	0	0	0
1985	1003	78	102	0	1027	0
1986	2520	196	261	0	2585	0
1987	1856	144	217	0	1929	0
1988	1435	111	175	0	1499	0
1989	1432	111	177	0	1498	0
1990	1433	111	179	0	1501	84
1991	1434	111	181	0	1503	NC
1992	1435	111	182	0	1506	NC
1993	1435	111	184	0	1508	NC
1994	1436	112	185	0	1510	NC
1995	1437	112	187	0	1512	NC
2000	1439	112	193	0	1520	74
2005	1068	82	152	0	1138	0
2010	13	1	25	0	37	2
2015	13	1	25	0	37	-27

Source: Mountain West Research - North, Inc., December, 1982

Note: Details may not sum due to rounding.

TABLE 7.4.2.1-5

Big Horn County Commercial Opportunities  
KME Mine Scenario  
Big Horn County, Montana  
1990

Type of Commercial Opportunity	With Project	Baseline	Impact
<u>Retail</u>			
Gasoline Service Station	22	22	0
Eating and Drinking Place	31	31	0
Grocery and Other Food Store	10	10	0
Motor Vehicle Dealers and Auto Supply Store	9	9	0
Clothing and Shoe Store	8	8	0
Lumber, Hardware, and Mobile Home Dealers	10	10	0
Furniture and Household Appliance Stores	7	7	0
Department Stores	2	2	0
Drug, Variety, General Merchandise Stores	12	12	0
Sporting Goods, Hobby, Flowers, Gift, Sewing Stores	11	11	0
Liquor Store	5	5	0
Jewelry Store	4	4	0
Book Store and Newstands	1	1	0
<u>Service</u>			
Hotels, Motels, Commercial Campgrounds	25	25	0
Beauty and Barber Shops	14	14	0
Auto Repair Shops	14	14	0
Legal, Accounting, Advertising, Data Processing	25	25	0
Engineering, Architecture, Surveying	6	6	0
Equipment and Auto Renting and Leasing	4	4	0
Laundries	5	5	0
Appliance, Furniture, and Shoe Repair	6	6	0
Movie Theatres and Bowling Alleys	4	4	0
Janitorial Services	6	6	0
Photographic Studios	3	3	0
Car Washes	2	2	0
Funeral Services	1	1	0
<u>Finance and Real Estate</u>			
Real Estate Office	12	12	0
Insurance Agencies	6	6	0
Personal Credit Institution	3	3	0
Commercial Bank	3	3	0
Savings and Loan Association	0	0	0
<b>TOTAL</b>	<b>271</b>	<b>271</b>	<b>0</b>

Source: Mountain West Research-North, Inc., 1982.

Note: Forecast population for 1990: 13,642.

TABLE 7.4.2.3-1

KME Scenario Forecast  
Housing Unit Demand/Supply  
Big Horn County

Year	Total Demand	Incremental Demand Over Previous Year	Local Supply Response (Limit = 40)	Cumulative (Deficit) Surplus	Baseline (Deficit) Surplus	(Deficit) Surplus Attributed to Project
1980	2,601					
1981	2,613	12	12	0	0	0
1982	2,504	-9	0	9	9	0
1983	2,616	12	3	0	0	0
1984	2,630	14	14	0	0	0
1985	2,653	23	23	0	0	0
1986	2,680	27	27	0	0	0
1987	2,698	18	18	0	0	0
1988	2,742	44	40	(4)	0	(4)
1989	2,766	24	28	0	0	0
1990	2,858	92	40	(52)	(51)	(1)
1991	2,877	19	40	(31)	(19)	(12)
1992	2,940	63	40	(54)	(42)	(12)
1993	2,969	29	40	(43)	(30)	(13)
1994	2,995	26	40	(29)	(16)	(13)
1995	3,035	40	40	(29)	(15)	(14)
1996	3,065	30	40	(19)	(4)	(15)
1997	3,092	27	40	(6)	0	(6)
1998	3,135	43	40	(9)	(2)	(7)
1999	3,166	31	40	0	0	0
2000	3,205	39	39	0	0	0
2005	3,290	85 for 5 yrs	85 for 5 yrs	0	0	0
2010	3,469	179 for 5 yrs	179 for 5 yrs	0	0	0
2015	3,652	183 for 5 yrs	183 for 5 yrs	0	0	0

Source: Mountain West Research-North, Inc., 1982.

Note: Includes non-Indian population and Crow population in Hardin.

#### 7.4.2.5 Fiscal

Big Horn County's tax base would be increased by over \$33 million per year during the life of the mine (1987-2006). The revenues generated by the property tax would not be offset by an equivalent rise in the demand for services. Therefore, the KME Mine would lead to a projected cumulative surplus of over \$20 million in 2005 (see Table 7.4.2.5-1), a figure that is well above the cumulative deficit of \$0.1 million forecast under the baseline scenario.

#### 7.4.2.6 Schools -- Facilities/Services and Fiscal

##### Facilities/services

The projections of personnel and capital facilities requirements in the KME scenario are based on student enrollments. Tables 4.4.2.6-1 and D-3 (Appendix D) present comparative student enrollments, from which the school requirements are derived.

For the KME and baseline scenarios, student enrollments would be identical in all public school jurisdictions except Elementary School District No. 17H (Hardin). For the elementary schools in Hardin, the mid-term (1995) student enrollment under baseline conditions is forecast to be 970 students, 10 fewer than the 980 students projected for the KME scenario, a difference of approximately 1 percent (see Table 4.4.2.6-1).

Given the insignificant variation in student enrollment between the KME and baseline scenarios, no change in projected requirements for personnel and capital facilities is attributable to the KME Mine: personnel and capital facilities requirements remain as described in Section 4.4.2.6.

##### Fiscal

This section discusses the fiscal conditions of the county school districts for the KME Mine scenario. Big Horn County would receive almost no population increase from the proposed action; therefore, the change in enrollments for each district would be minimal or nonexistent. For this reason, the fiscal conditions of the districts in the KME impact scenario would be identical to the conditions for the baseline scenario, except as noted below. (See Section 4.4.2.5.)

A key component of the county school finance conditions is the state school equalization program. As discussed in Section 3.3.2.6, the state school foundation program is the basis of the revenue generation for school districts in Montana. Big Horn County has been a net contributor to the state foundation program in the past. It is anticipated that the county would continue to produce surplus funds to the state throughout the major portion of the forecast period. Table 7.4.2.6-1 presents the forecast net contribution to the state program from both the high school and elementary district's mandatory levies.

As shown, the surplus in foundation money produced by the county is expected to increase from \$1.66 million in 1982 to a maximum of \$5.38 million in 1995. Only after 2010 is the county forecast to cease being a net contributor to the fund. This change would be caused by a loss of tax base in the county due to the closure of several of the existing coal mines. The net contribution in the baseline scenario is forecast to increase from \$0 in 1982 to a peak of \$1.34 million in 1985-2000 and then decrease to \$3,000 in 2015.

TABLE 7.4.2.5-1

Fiscal Summary: KME Scenario  
Big Horn County  
(\$000)

Fiscal Summary	1982	1983	1984	1985	1986	1987	1988	1989	1990	1995	2000	2005	2010	2015
Revenues Total	5,483	5,663	5,577	6,532	7,130	8,583	8,702	8,946	9,029	9,568	8,850	5,636	5,615	3,986
Expenditures														
O & M	6,065	6,190	6,249	6,321	6,391	6,452	6,530	6,599	6,736	7,095	7,420	8,256	8,046	8,131
Capital	3,180	395	300	300	300	300	300	300	377	300	564	300	300	300
Debt Payment	970	350	350	350	350	350	350	350	350	350				
Total	10,215	6,935	6,899	6,971	7,041	7,102	7,180	7,249	7,464	7,745	7,984	8,556	8,346	8,431
Fiscal Balance														
KME Alternative														
Annual	-1,272	-1,272	-1,322	-439	89	1,481	1,521	1,697	1,565	1,824	866	-2,919	-2,731	-4,445
Cumulative			-2,594	-3,033	-2,944	-1,463	58	1,755	3,321	12,501	20,355	20,465	NF	NF
Fiscal Balance														
No Action														
Annual	-1,249	-1,249	-1,322	-747	-265	308	361	455	488	670	-23	-2,573	-2,732	-4,447
Cumulative			-2,571	-3,318	-3,583	-3,274	-2,913	-2,458	-1,970	1,441	3,805	-94	NF	NF

Sources: Briscoe, Maphis, Murray, and Lamont, Inc.; B.Y. Analytics, 1983.

Notes: Details may not sum due to rounding.

NF = not forecast.

Because of limitations in the size of the computer model used to project population, it was possible to make annual projections through 2005. Thereafter only the single years 2010 and 2015 were projected. Therefore, it was not possible to compute cumulative fiscal results for years following 2005.

TABLE 7.4.2.6-1

Net Contribution to State Foundation Program  
KME Scenario  
Big Horn County  
1982-2015  
(1982 \$000)

Year	Elementary		High School		Net Surplus	Total Surplus	Net Change Over Baseline
	Revenues	Expend- itures	Revenues	Expend- itures			
1982	3,095	2,139	1,857	1,152	705	1,661	0
1983	3,028	2,151	1,817	1,094	723	1,600	0
1984	2,958	2,184	1,775	1,023	752	1,526	0
1985	3,626	2,247	2,176	995	1,181	2,560	353
1986	4,041	2,256	2,425	1,004	1,421	3,206	408
1987	5,068	2,294	3,041	1,020	2,021	4,795	1,339
1988	5,140	2,331	3,084	1,035	2,049	4,858	1,341
1989	5,303	2,393	3,182	1,012	2,170	5,080	1,342
1990	5,339	2,447	3,204	1,013	2,191	5,083	1,342
1995	5,666	2,497	3,399	1,189	2,210	5,379	1,342
2000	5,100	2,403	3,060	1,221	1,839	4,536	1,342
2005	2,672	2,433	1,603	1,176	427	666	3
2010	2,691	2,537	1,615	1,152	463	617	2
2015	1,516	2,723	909	1,235	-326	-1,533	3

Source: Mountain West Research-North, Inc., 1983.



### 7.4.3 Hardin and Hardin Area

#### 7.4.3.1 Introduction

This section presents the KME Mine impact forecasts for Hardin and the Hardin area. Section 7.4.3.2 presents the population and economic forecasts for each area and Section 7.4.3.3 discusses social life in Hardin and the Hardin area under the KME Mine scenario. The housing impact forecasts are presented in Section 7.4.3.4. Facilities/services and fiscal impact forecasts are presented in sections 7.4.3.5 and 7.4.3.6, respectively.

#### 7.4.3.2 Population and Economy

As shown in Table 7.4.3.2-1, the effects of the project on the non-Indian population in Hardin would start in 1988 at the beginning of the operations period and remain at the thirty to thirty-three person level through 2000 before declining to twenty-six people by 2005. The population effects in the Hardin north area (excluding the city) would follow a similar pattern, but would be limited to between eleven and twelve people during most of the forecast period.

In 1990, when operations employment at the KME Mine would have reached its peak, non-Indian employment in Hardin would be 1,143 workers, 8 workers above the baseline level of 1,135 workers. By 1990, non-Indian labor income in Hardin is forecast to be \$16.1 million, about \$0.1 million above the baseline level of \$16.0 million. The project is not forecast to have a noticeable impact on Crow Indian population, employment and income in Hardin or on non-Indian employment and income in the Hardin north area. (Mountain West Research-North, Inc., 1982.)

#### 7.4.3.3 Social Life and Cultural Diversity

The effects of the KME Mine on the Hardin area would be minimal, and generally of the nature described in Section 7.4.2.2. Any effects from the proposed mine would be subtle compared to the social issues facing Hardin under baseline conditions. (See Section 4.4.3.3.) These project-related effects are not anticipated to be of a nature that would substantially alter the baseline characteristics in the Hardin area.

#### 7.4.3.4 Housing

As shown in Table 7.4.3.4-1, the incremental housing demand created by the KME Mine in Hardin would begin in 1988 at nine additional units and build to seventeen additional units in 2000, before dropping to thirteen additional units in 2005. The housing demand effects in the Hardin area would be present in the same years, but would be limited to a peak of five additional units. As noted in Section 7.3.4, because of aggregate county demand local builders probably would not be able to provide this additional housing at their current capacities. However, it is expected that builders from elsewhere in the region would be able to respond should housing demand materialize.

#### 7.4.3.5 Facilities and Services

The small population effects described in Section 7.4.3.2 would not be sufficient (maximum 30 people) to have a noticeable effect on Hardin's facilities and services.

TABLE 7.4.3.2-1  
KME Scenario Impact  
Population  
Big Horn County Allocation Areas

Year	City of Hardin (non-Indian)	Hardin Area	Decker/Spring Creek Area
1980	0	0	0
1981	0	0	0
1982	0	0	0
1983	0	0	0
1984	0	0	0
1985	0	0	4
1986	0	0	11
1987	0	0	2
1988	20	6	3
1989	30	11	3
1990	31	12	4
1991	31	11	3
1992	32	11	4
1993	32	12	4
1994	32	11	4
1995	32	11	4
1996	33	12	4
1997	33	11	5
1998	33	11	4
1999	33	12	4
2000	33	11	5
2005	26	10	4
2010	0	0	0
2015	0	0	0

Source: Mountain West Research-North, Inc., 1982.

TABLE 7.4.3.4-1

KME Scenario  
Housing Demand Impacts  
Big Horn County Allocation Areas  
(Housing Units)

Year	City of Hardin (non-Indian)	Hardin Area	Decker/Spring Creek Area
1980	0	0	0
1981	0	0	0
1982	0	0	0
1983	0	0	0
1984	0	0	0
1985	0	0	2
1986	0	0	5
1987	0	1	1
1988	9	2	1
1989	14	4	2
1990	14	4	2
1991	15	4	1
1992	15	4	2
1993	15	5	2
1994	16	4	2
1995	15	5	2
1996	16	4	2
1997	16	4	2
1998	16	4	2
1999	17	5	2
2000	17	4	2
2005	13	4	2
2010	0	0	0
2015	0	0	0

Source: Mountain West Research-North, Inc., 1982.

#### 7.4.3.6 Fiscal

As shown in Table 7.4.3.6-1, the population effects on the town from the KME Mine are very small. Consequently, the trend of yearly deficits forecast to be maintained throughout the baseline scenario, resulting in a cumulative deficit of about \$11 million in 2005, is essentially unaffected by the KME Mine: no fiscal effects from the KME Mine are forecast.

#### 7.4.4 Decker Area

##### 7.4.4.1 Introduction

This section presents the KME Mine impact forecasts for the Decker area. Section 7.4.4.2 presents the population and economic impact forecasts for the area. Section 7.4.4.3 discusses social life in the Decker Area under the KME Mine scenario. The housing impact forecasts are presented in Section 7.4.4.4. Facilities/services and fiscal impact forecasts for the Decker area have been covered within the county level discussion of school districts (see Section 7.4.2.6) and are not discussed here.

##### 7.4.4.2 Population and Economy

As shown in Table 7.4.3.2-1, population effects in the Decker/Spring Creek area would reach a peak of eleven people in 1986 during the KME construction period and then remain at a level of between three and five people for the duration of the operations period. In 1990, when operations employment at the KME Mine would have reached its peak, 225 Decker area residents would be employed, 23 job-holders above the baseline level of 202. In this case, it is important to note that employment effects would exceed population effects because most of the jobs would be obtained by local residents. The Decker area's total labor income in 1990 would be \$3.51 million, about \$.58 million or \$580,000 above the baseline labor income of \$2.93 million. (Mountain West Research-North, Inc., 1982.)

##### 7.4.4.3 Social Life and Cultural Diversity

###### Background

As indicated in the baseline discussion, the population forecasts made for the rural areas of southern Big Horn County are tenuous, given their vulnerability to the decisions of individual developers or entrepreneurs. The very small population base of the Decker area makes minor changes in absolute population size of potential major importance to social conditions. The population projections presented in the previous section indicate that the Decker area would experience no population effects of any significance from the KME Mine. Although employment characteristics of the area -- by place of work -- show substantial changes over baseline forecasts, the Decker area communities have experience with nonresident work forces and are not likely to be greatly affected by the continual presence of these workers.

If a major, planned unit development (such as Spring Creek) or a substantial influx of newcomers into the rural Decker area did materialize, new forms and structures would be imposed upon the existing open ranch communities of this area, as discussed in Section 4.4.4.3.

###### Social organization

The community's recent and prolonged experience with declining population is expected to cease after 1983 as the population stabilizes between 199 and 220 residents. As a result, the characteristics of the

TABLE 7.4.3.6-1

Fiscal Summary: KME Scenario  
City of Hardin  
(\$000)

Fiscal Summary	1982	1983	1984	1985	1986	1987	1988	1989	1990	1995	2000	2005	2010	2015
Revenues Total	878	920	924	932	939	944	953	961	988	1,038	1,073	1,125	1,176	1,211
Expenditures														
O & M	1,279	1,311	1,317	1,329	1,339	1,347	1,362	1,373	1,414	1,489	1,542	1,621	1,688	1,713
Capital	10	38	30	10	10	10	10	43	10	10	28	19	10	10
Debt Payment	49	49	49	49	49	49	49	40	40					
Total	1,338	1,398	1,396	1,388	1,398	1,406	1,421	1,456	1,465	1,499	1,571	1,640	1,698	1,723
Fiscal Balance														
KME Alternative														
Annual	-478	-478	-472	-456	-460	-462	-467	-495	-477	-462	-498	-515	-522	-513
Cumulative			-950	-1,406	-1,866	-2,328	-2,796	-3,291	-3,768	-6,162	-8,568	-11,054	NF	NF
Fiscal Balance														
No Action														
Annual	-475	-475	-470	-456	-460	-463	-465	-491	-472	-457	-496	-515	-523	-512
Cumulative			-945	-1,402	-1,862	-2,324	-2,789	-3,280	-3,752	-6,125	-8,512	-10,980	NF	NF

Sources: Briscoe, Maphis, Murray, and Lamont, Inc.; B.Y. Analytics, 1983.

Notes: Details may not sum due to rounding.

NF = not forecast.

Because of limitations in the size of the computer model used to project population, it was possible to make annual projections through 2005. Thereafter only the single years 2010 and 2015 were projected. Therefore, it was not possible to compute cumulative fiscal results for years following 2005.



community's social organization will probably remain essentially as described in the baseline forecast unless an unforeseen influx of residents occurs. Changes in the diversity and complexity of the community and of its stratification system would be similar with the construction and operations of the KME Mine to those anticipated under baseline conditions, with the exception that mining and miners would acquire an even more prominent and economically important position in the region. However, aside from heightening area residents' attention to these activities, and maintaining sensitivity to the tensions between mining and ranching at levels somewhat above baseline conditions, little substantive difference is anticipated between baseline and with-project conditions.

Linkages between community residents and the outside are expected to follow the patterns described in the baseline discussion. As indicated there, the forecast characteristics are subject to modification should unforeseen changes in residential patterns, regulatory procedures, or population characteristics occur.

Integration in the Decker area communities is probably now as low as it will ever be. As described in the baseline discussion, important and intense changes have occurred in the recent past. It is possible that these changes -- and their adverse effect on community integration -- will continue and that the community will not enjoy a high level of integration until well into the future, if ever. The mine might serve to reduce integration slightly over the baseline levels as the visual effects of mining and the nuisances created by greater populations seeking access to rural areas create further alienation among agricultural residents. Economic and political integration do not appear likely to undergo significant change during the forecast period.

#### Perceptions of the community

Since residents of the Decker area generally appear to be resigned to future, widespread coal development in their area (see Section 4.4.4.3), it is unlikely that their perceptions will be greatly affected by the presence of the KME Mine. Since most agriculturally based residents of the area have not liked the mining that has already occurred, it is unlikely that they will feel more positive about additional strip mining in their vicinity. However, as noted previously, most area residents have resigned themselves to the inevitability of further coal development and are therefore unlikely to be surprised if such development does occur. Residents of the area are likely to experience continuing contradictory feelings regarding the changes that are occurring in the region. Many will feel positively about the continued growth of Sheridan's commercial and service sectors, improved transportation links to the Sheridan area, and greater regional prosperity, but many will be distressed by the increased nuisance levels associated with the presence of strangers and nonresidents and by the diminution of the former strong sense of community identity and cohesion.

The forecast changes in demographic and economic characteristics are unlikely to be sufficient to modify area residents' well-being compared to baseline conditions. Nevertheless, residents would regret any increased use of agricultural land for mining or nonproductive purposes.

#### 7.4.4.4 Housing

As shown in Table 7.4.3.4-1, the housing demand effects of the KME Mine in the Decker/Spring Creek area would begin in 1985 and end by 2005. Aside from the five additional units that would be needed in 1986, the housing demand effects would be no more than two additional units in any given year. As noted in Section 7.3.4, because of aggregate county demand during this period local builders would probably be unable to meet this additional housing demand at their current capacities.



Under the KME scenario, it does not appear that housing demand in the Decker area would be large enough to trigger development of Spring Creek, an approved subdivision described in Section 3.3.4.4. However, if for some reason Spring Creek were developed, it would serve to shift some housing demand away from other areas toward Spring Creek and increase KME scenario demand for housing in the Decker/Spring Creek area.

#### 7.4.4.5 Facilities and Services

There are no local jurisdictional units in the Decker/Spring Creek area. Consequently, no discussion of facilities/services conditions is appropriate for this geographic area. Public elementary and secondary schools are discussed at the county level.

#### 7.4.4.6 Fiscal

There are no local jurisdictional units in the Decker/Spring Creek area. Consequently, no discussion of fiscal conditions is appropriate for this geographic area. Public elementary and secondary schools are discussed at the county level.

### 7.5 Crow Reservation and Communities

#### 7.5.1 Introduction

This section discusses the effects of the KME Mine on the Crow Indian Reservation and its communities. The section is comprised of four subsections, each of which focuses on a particular geographic area of the reservation. Section 7.5.2 presents population, economic, social life and cultural diversity, housing, facilities/services, and fiscal impact forecasts for the reservation as a whole. Sections 7.5.3 and 7.5.4 present the same set of impact forecasts for Crow agency and the Northeast area and for Lodge Grass and the southeast area, respectively. Because the KME Mine is expected to have little effect on the central and west areas, sections 7.5.4 and 7.5.5 describe the anticipated population and economic impact changes associated with the mine in these areas, but do not discuss the housing, facilities/services, or fiscal forecasts unless warranted by the magnitude of potential change. It should be noted that the incidental presence of non-Indians on the reservation due to the increased population in the Decker-Sheridan area and the proximity of the mines and their jobs to the reservation may raise the need for tribal response in the areas of law enforcement (trespass, littering, traffic) and fish and wildlife management. These consequences are addressed in the accompanying AITS report (1983).

#### 7.5.2 Crow Reservation

##### 7.5.2.1 Population and Economy

Because the KME Mine would not cause Crow Indian in-migration to the reservation or Hardin, its effects on the Crow population would be limited to employment and income (see Section 4.2.2.1). As shown in Table 7.5.2.1-1, which presents projections for the Crow Indians on the reservation and in Hardin at five-year increments, Crow employment effects under the KME scenario would begin in 1985 at nine workers, increase to 20 workers through 2000, and then decline back to fifteen workers by 2005. As shown in the table, this project-related employment would cause a slight reduction in the unemployment rate during the years in which employment effects occur. In 1990, when the KME Mine would be at full operations employment, the total labor income of Crow Indians in Big Horn County would be \$25.0 million, or about \$0.6 million above the forecast baseline labor income of \$24.4 million in 1990. (Mountain West Research-North,

TABLE 7.5.2.1-1

KME Scenario Forecast  
Crow Indian Population, Labor Force, and Employment  
Crow Reservation and Hardin

Year	KME Scenario and Baseline Scenario				Employment		Unemployment Rate (Percent)	
	Population	Labor Force	Labor Force Participation Rate (Percent)	KME Scenario	Baseline Scenario	Impact	KME Scenario	Baseline Scenario
1980	5,578	2,089	38.8	1,319	1,319	0	36.9	36.9
1985	5,944	2,419	40.7	1,324	1,315	9	45.3	45.6
1990	6,454	2,675	41.4	1,535	1,515	20	42.6	43.4
1995	6,912	2,993	43.3	1,733	1,713	20	42.1	42.8
2000	7,414	3,239	43.7	1,906	1,885	21	41.2	41.8
2005	7,856	3,499	44.5	2,101	2,086	15	40.0	40.4
2010	8,358	3,657	43.8	2,274	2,274	0	37.8	37.8
2015	9,119	3,847	42.1	2,517	2,517	0	34.6	34.6

Source: Mountain West Research-North, Inc., 1982.

Inc., 1982.) It should also be noted that these employment and income figures are based on the assumptions delineated in Section 5.4.1 and do not reflect the increased employment and income of Crow tribal members that would result if off-reservation mines practiced significant levels of Indian preference in hiring or from Crow dividends from royalties and a possible Crow severance tax. Also not included are the potential employment benefits that would result from accelerated highway construction funded by the new federal gasoline tax. Realization of these employment opportunities could make the forecasts presented in the report conservative.

#### 7.5.2.2 Social Life and Cultural Diversity

For this discussion, please see the Socioeconomic Assessment Report prepared by the Crow Tribe (AITS 1983).

#### 7.5.2.3 Housing

Because the KME Mine is not forecast to result in any in-migration of Crow Indians to the Crow Reservation, it would not have any housing impacts on the Crow Indian population. Although the KME Mine could result in some in-migration of non-Indians to the Crow Reservation (as discussed in Chapter 2), their numbers would be so few as to make KME scenario housing demand almost indistinguishable from baseline housing demand. Hence, no detailed discussion of the KME effects on housing for the Crow Reservation is presented here; the data are presented in the Appendix B.

#### 7.5.2.4 Facilities and services

Since requirements for personnel, capital facilities, and equipment are forecast primarily from service area populations, the absence of population effects from the KME Mine means a corresponding absence of facilities/services effects. Table 4.1-4 and Appendix D illustrate the similarity of the baseline and KME populations which determine the requirements for personnel, capital facilities, and equipment. Given this similarity, no effects from the KME Mine are anticipated; conditions under the KME scenario are forecast as described for the baseline (see Section 4.5.2.5).

#### 7.5.2.5 Fiscal

The KME Mine is forecast to have no effect on the fiscal condition of the Crow Reservation, lacking as it does any notable population, housing, or revenue effects for this area. Baseline fiscal conditions, described in Section 4.5.2.5, would remain essentially unchanged under the KME scenario.

### 7.5.3 Crow Agency and Northeast Area

#### 7.5.3.1 Introduction

This section presents the KME Mine impact forecasts for Crow Agency and the northeast area of the Crow Indian Reservation. The section is divided into five subsections. Section 7.5.3.2 presents the population and economic impact forecasts. Section 7.5.3.3 discusses social life and cultural diversity under the KME scenario. Section 7.5.3.4 discusses housing impact forecasts. Finally, sections 7.5.3.5 and 7.5.3.6 describe facilities/services and fiscal impact forecasts, respectively.

#### 7.5.3.2 Population and Economy

The KME Mine would not cause Crow Indian in-migration to Crow Agency or the northeast area; therefore its impacts on the Crow population would be limited to employment and income.

In 1990, when operations employment at the KME Mine would have reached its peak, Crow Indian employment in Crow Agency and the northeast reservation would be 582 workers, or 7 workers above the baseline employment forecast of 575 workers. By 1990 with the KME Mine, labor income is forecast to be \$9.74 million, or about \$190,000 above the baseline level of \$9.55 million. (Mountain West Research-North, Inc., 1982.)

#### 7.5.3.3 Social Life and Cultural Diversity

For this discussion, please see the Socioeconomic Assessment Report prepared by the Crow Tribe (AITS 1983).

#### 7.5.3.4 Housing

Because the KME Mine is not forecast to result in any in-migration of Crow Indians to Crow Agency or the northeast area, it would not have any effect on the housing characteristics of the Crow Indian population there. Although the KME Mine could result in some in-migration of non-Indians to the area (as discussed in Chapter 2), their numbers would be so small as to make KME scenario housing demand almost indistinguishable from the baseline. Detailed housing demand data for Crow Agency and the northeast area under the KME alternative are therefore not presented here, but are included in Appendix B.

#### 7.5.3.5 Facilities and Services

Since requirements for personnel, capital facilities, and equipment are forecast primarily from service area populations, the absence of population effects from the KME Mine in Crow Agency and the northeast area means a corresponding absence of facilities/services effects. Appendixes B and D illustrate the similarity of the baseline and KME populations which determine the requirements for personnel, capital facilities, and equipment. Given this similarity, no effects from the KME Mine in Crow Agency and the northeast area are anticipated; conditions under the KME scenario are forecast as described for the baseline (see Section 4.5.3.5).

#### 7.5.3.6 Fiscal

The KME Mine is forecast to have no effect on the fiscal condition of Crow Agency or the northeast area, lacking as it does any notable population, housing, or revenue effects for this area. Baseline fiscal conditions, described in Section 4.5.3.6, would remain essentially unchanged under the KME Scenario.

### 7.5.4 Lodge Grass and Southeast Area

#### 7.5.4.1 Introduction

This section presents the KME Mine impact forecasts for Lodge Grass and the southeast area of the Crow Indian Reservation. The section is divided into five subsections. Section 7.5.4.2 presents the population and economic impact forecasts. Section 7.5.4.3 discusses social life and cultural diversity under



the KME scenario. Section 7.5.4.4 discusses housing impact forecasts. Finally, sections 7.5.4.5 and 7.5.4.6 present facilities/services and fiscal impact forecasts, respectively.

#### 7.5.4.2 Population and Economy

Because the KME Mine would not cause Crow Indian in-migration to Lodge Grass or the southeast area, its impacts on the Crow population would be limited to employment and income.

In 1990, when operations employment at the KME Mine would have reached its peak, Crow Indian employment in Lodge Grass and the southwest reservation would be 339 workers, or 2 workers above the baseline forecast of 327 workers. By 1990 labor income under the KME scenario would be \$5.35 million, or about \$350,000 above forecast baseline labor income of \$5 million. (Mountain West Research-North, Inc., 1982.)

#### 7.5.4.3 Social Life and Cultural Diversity

For this discussion, please see the Socioeconomic Assessment Report prepared by the Crow Tribe (AITS 1983).

#### 7.5.4.4 Housing

Because the KME Mine is not forecast to result in any in-migration of Crow Indians to Lodge Grass or the southeast area, it would not have any housing impacts on the Crow Indian population there. Although the KME Mine could result in some in-migration of non-Indians to the area, as discussed in Chapter 2, their numbers would be so small as to make KME scenario housing demand almost indistinguishable from baseline housing demand. Hence, the KME scenario housing impacts for Lodge Grass and the southeast area are not presented here, but are included in Appendix B.

#### 7.5.4.5 Facilities and Services

Since requirements for personnel, capital facilities, and equipment are forecast primarily from service area populations, the absence of population effects from the KME Mine in Lodge Grass and the southeast area means a corresponding absence of facilities/services effects. Appendixes B and D illustrate the similarity of the baseline and KME populations which determine the requirements for personnel, capital facilities, and equipment. Given this similarity, no effects from the KME Mine are anticipated; conditions under the KME scenario are forecast as described for the baseline (see Section 4.5.4.6).

#### 7.5.4.6 Fiscal

The KME Mine is forecast to have no effect on the fiscal condition of Lodge Grass or the southeast area, lacking as it does any notable population, housing, or revenue effects for this area. Baseline fiscal conditions, described in Section 4.5.4.7, would remain unchanged under the KME Scenario.

### 7.5.5 Central Area

#### 7.5.5.1 Introduction

This section presents the KME Mine impact forecasts for the central area of the Crow Indian Reservation. Section 7.5.5.2 presents population and economic impact forecasts. Section 7.5.5.3 discusses facilities/services conditions under the KME scenario.

#### 7.5.5.2 Population and Economy

Because the KME Mine would not cause Crow Indian in-migration to the central area, its impacts on the Crow population would be limited to employment and income.

In 1990, when operations employment at the KME Mine would have reached its peak, Crow Indian employment in the central part of the reservation would be 83 workers, or 1 worker above a forecast baseline employment of 82 workers. By 1990 labor income under the KME scenario would be \$1.24 million, or about \$20,000 above forecast baseline labor income of \$1.22 million. (Mountain West Research-North, Inc., 1982.)

#### 7.5.5.3 Other Topical Areas of Importance

##### Facilities and services

Since requirements for personnel, capital facilities, and equipment are forecast primarily from service area populations, the absence of population effects from the KME Mine in the central area means a corresponding absence of facilities/services effects. Appendixes B and D illustrate the similarity of the baseline and KME populations which determine the requirements for personnel, capital facilities, and equipment. Given this similarity, no effects from the KME Mine are anticipated; conditions under the KME scenario are forecast as described for the baseline (see Section 4.5.5.3).

### 7.5.6 West Area

#### 7.5.6.1 Introduction

This section presents the KME Mine impact forecasts for the west area of the Crow Indian Reservation. Section 7.5.6.2 presents population and economic impact forecasts. Section 7.5.6.3 discusses facilities/services conditions in the west area under the KME scenario.

#### 7.5.6.2 Population and Economy

Because the KME Mine would not cause Crow Indian in-migration to the west area, its impacts on the Crow population would be limited to employment and income.

In 1990, when operations employment at the KME Mine would have reached its peak, Crow Indian employment in the western part of the reservation would be 81 workers, exactly the same number of workers as forecast under baseline conditions. By 1990, labor income under the KME and baseline scenarios would be \$1.23 million.



### 7.5.6.3 Other Topical Areas of Importance

#### Facilities and services

Since requirements for personnel, capital facilities, and equipment are forecast primarily from service area populations, the absence of population effects from the KME Mine in the west area means a corresponding absence of facilities/services effects. Appendixes B and D illustrate the similarity of the baseline and KME populations which determine the requirements for personnel, capital facilities, and equipment. Given this similarity, no effects from the KME Mine are anticipated; conditions under the KME scenario are forecast as described for the baseline (see Section 4.5.6.3).

## 7.6 Northern Cheyenne Reservation

### 7.6.1 Introduction

This section presents the KME Mine impact forecasts for the Northern Cheyenne Indian Reservation. Section 7.6.2 describes the population and economic impact forecasts for the reservation as a whole, including both Big Horn and Rosebud counties. More detailed population and economic impact forecasts for the Big Horn County portion of the reservation are presented in Appendix B. Because the KME Mine would not cause any in-migration to the reservation, detailed social, housing, facilities/services, and fiscal forecasts are not presented here.

### 7.6.2 Employment and Income

Because the KME Mine would not cause Northern Cheyenne Indians to in-migrate to the Northern Cheyenne Reservation, its impact on the Northern Cheyenne Indians would be limited to employment and income. As shown in Table 7.6.2-1, which shows five-year increments, the mine would increase employment among Northern Cheyenne Indians by three workers in 1985, by nine workers in 1990, 1995, and 2000, and by seven workers in 2005. As shown, this employment would cause a slight reduction in the unemployment rate in each year during which there is an employment impact. In 1990, when the KME Mine would be at full operations employment, the total labor income of Northern Cheyenne Indians who live only in the Big Horn County portion of the Northern Cheyenne Indian Reservation would be \$3.7 million, about \$0.2 million or \$200,000 above the forecast baseline labor income of \$3.5 million. (Mountain West Research-North, Inc., 1982.)

## 7.7 Sheridan County and Communities

### 7.7.1 Introduction

This section presents the KME Mine impact forecasts for Sheridan County and its communities. Section 7.7.2 presents the impact forecasts for Sheridan County as a whole. Section 7.7.3 discusses the impact forecasts for the city of Sheridan and the greater Sheridan area. Section 7.7.4 focuses on the impact forecasts for the Ranchester, Dayton, and the surrounding area. Finally, Section 7.7.5 presents the impact forecasts for the rest of Sheridan County.

Throughout this section, the level of detail presented is scaled to the magnitude of potential impacts. The sections which focus on Sheridan, Ranchester, Dayton and the surrounding areas present a full set of population, economic, social life, housing, facilities/services, and fiscal impact forecasts. However, because the level of impact is the rest of Sheridan County (which includes the southern portion

TABLE 7.6.2-1

KME Scenario Forecast  
Northern Cheyenne Population, Labor Force, and Employment  
Northern Cheyenne Reservation  
(Big Horn and Rosebud County)

Year	KME Scenario and Baseline Scenario				Employment		Unemployment Rate (Percent)	
	Population	Labor Force	Labor Force Participation Rate (Percent)	KME Scenario	Baseline Scenario	Impact	KME Scenario	Baseline Scenario
1980	3,255	1,007	30.9	749	749	0	25.6	25.6
1985	3,583	1,156	32.3	900	897	3	22.1	22.4
1990	3,960	1,318	33.3	867	858	9	34.2	34.9
1995	4,324	1,514	35.0	890	881	9	41.2	41.8
2000	4,670	1,662	35.6	920	911	9	44.6	45.2
2005	4,985	1,795	36.0	955	948	7	46.8	47.2
2010	5,265	1,917	36.4	988	988	0	48.5	48.5
2015	NF	NF	NF	NF	NF	NF	NF	NF

Source: Mountain West Research-North, Inc., 1982.

Note: NF = not forecast.

of the county) is expected to be less significant, Section 7.7.5 focuses on the population and economic impact forecasts and covers other topical areas of interest only if warranted by the potential level of impact.

## 7.7.2 Sheridan County

### 7.7.2.1 Population and Economy

As shown in Table 7.7.2.1-1, the KME Mine's population effects in Sheridan County would begin in 1985 and end in 2009. During the 1985 and 1986 construction period, the incremental population effect is forecast to reach a maximum of 991 people, which would be 3.4 percent of the county's total population. In 1987, when both the construction and operations work forces would be present, the total population impact is forecast to be 1,300 people, or 4.4 percent of the total population. During the operations period, which would begin in 1987, the population impact is forecast to reach about 1,150 people by 1989 and then remain relatively constant at a population about 4 percent above baseline through 2000. After 2000, the population impact is forecast to decline to 725 people by 2005 and to zero people by 2010, when the mine would have ceased operations.

As shown in Table 7.7.2.1-2, the total employment effect under the KME scenario during the construction period would be 119 workers in 1985, 477 workers in 1986, and 570 workers in 1987, when operations of the mine would commence. The 1987 employment effect would be about 4 percent of total county employment. Total employment effects during the operations period are forecast to increase steadily from 542 workers in 1988 to 568 workers in 2001, before declining to 44 workers in 2010 after the mine has closed. As shown in the table, the largest employment increases are forecast to occur in the mining and construction sectors, which in turn stimulate employment effects in the other sectors.

As shown in Table 7.7.2.1-3, the employment effects noted above would be about evenly divided between basic and nonbasic jobs in all of the forecast years.

Table 7.7.2.1-4 presents the income effects that are forecast to occur under the KME scenario. As shown, the total personal income that would accrue to Sheridan County residents as a result of the KME Mine would peak at \$14.2 million per year during the construction period and then grow from \$13.6 to \$15.1 million per year during the operations period. The project's impact on per capita personal income in 1990 would be to raise it from \$10,414 (baseline) to \$10,476, a difference of \$62. In 2000, the difference between KME scenario and baseline per capita income is forecast to be \$102. In 2010, it is forecast to have fallen to \$71.

### Commercial opportunities

As shown in Table 7.7.2.1-5, the population and income growth due to the KME Mine would result in about 20 additional commercial opportunities in Sheridan County in 1990 after the temporary construction period population had left and the operations period population had become stabilized. The 1990 level of 593 commercial opportunities would be 13 percent above the current 1982 level.

### 7.7.2.2 Social Life and Cultural Diversity

As discussed in Section 7.7.2.1, the incremental population effects of the KME Mine on Sheridan County are relatively small -- a maximum increase of fewer than 1,500 people out of a county population of 30,000. These effects would generally cease with mine closure. By the year 2010, no incremental population due to the mine would be present in Sheridan County.

TABLE 7.7.2.1-1

KME Scenario Impacts  
Population  
Sheridan County

Year	Total Population	Births	Deaths	Employment- Related Migration	Non-employment Related Migration	Total Change
1980	0	0	0	0	0	0
1981	0	0	0	0	0	0
1982	0	0	0	0	0	0
1983	0	0	0	0	0	0
1984	0	0	0	0	0	0
1985	437	0	0	437	0	437
1986	991	7	0	548	0	554
1987	1300	15	1	296	-1	308
1988	1146	24	2	-172	-2	-153
1989	1150	21	2	-12	-2	3
1990	1149	19	2	-15	-2	0
1991	1147	18	3	-15	-2	-2
1992	1141	17	3	-17	-2	-5
1993	1140	16	3	-11	-2	1
1994	1149	15	3	0	-2	9
1995	1130	14	3	-26	-2	-18
2000	1105	12	5	-8	-3	-3
2005	725	9	6	-224	-2	-223
2010	0	0	0	0	0	0
2015	0	0	0	0	0	0

Source: Mountain West Research-North, Inc., 1982.

Notes: Details may not sum due to rounding. All values except total population represent annual changes.

TABLE 7.7.2.1-2

KME Scenario Impacts  
Total Employment by Sector  
Sheridan County

Year	Ag Propri etors	Ag Labor	Min ing	Con struc tion	Manu factu ring	TCPU	Trade	FIRE	Ser vices	Gov ern ment	Other +com.	Total
1980	0	0	0	0	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0	0	0	0	0
1984	0	0	0	0	0	0	0	0	0	0	0	0
1985	0	0	0	103	6	5	30	3	17	31	0	199
1986	0	0	0	253	14	14	68	8	41	77	0	477
1987	0	0	207	71	17	34	80	10	52	97	0	570
1988	0	0	233	16	17	42	79	10	50	93	0	542
1989	0	0	233	16	17	42	80	10	50	93	0	544
1990	0	0	233	16	17	42	80	10	50	94	0	545
1991	0	0	233	16	17	42	80	10	50	94	0	547
1992	0	0	233	16	18	42	81	10	51	94	0	548
1993	0	0	233	17	18	42	81	10	51	95	0	551
1994	0	0	233	17	18	42	82	10	52	96	0	553
1995	0	0	233	17	18	42	83	10	52	97	0	555
2000	0	0	233	17	19	43	86	11	54	101	0	566
2005	0	0	171	13	12	13	58	8	40	75	0	394
2010	0	0	0	2	2	2	11	1	8	15	0	44
2015	0	0	0	2	2	2	11	1	8	15	0	44

Source: Mountain West Research-North, Inc., 1982.

Note: Details may not sum due to rounding.



TABLE 7.7.2.1-3

KME Scenario Impacts  
Employment by Type  
Sheridan County

Year	Total	Non Basic	Basic Total	Basic Non Project	Indirect Basic	Basic Project O&M	Project Construction-Perm	Project Construction-NLoc.
1980	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0
1984	0	0	0	0	0	0	0	0
1985	199	93	105	0	9	0	43	52
1986	477	226	250	0	15	0	107	128
1987	570	285	285	17	7	207	24	29
1988	542	272	270	25	11	233	0	0
1989	544	274	270	25	11	233	0	0
1990	545	275	270	25	11	233	0	0
1991	547	277	270	25	11	233	0	0
1992	548	278	270	25	11	233	0	0
1993	551	281	270	25	11	233	0	0
1994	553	283	270	25	11	233	0	0
1995	555	285	270	25	11	233	0	0
2000	566	296	270	25	11	233	0	0
2005	394	222	171	0	0	171	0	0
2010	44	44	0	0	0	0	0	0
2015	44	44	0	0	0	0	0	0

Source: Mountain West Research-North, Inc., 1982.

Notes: Details may not sum due to rounding. "Basic project O&M" and "Indirect Basic" represent direct and indirect basic coal mining employment, respectively. No mines are assumed to operate in 2015.



TABLE 7.7.2.1-4

KME Scenario Impacts  
 Personal Income  
 Sheridan County  
 (1980 \$000)

Year	Total Labor Income	FICA Payments Payments	Non-labor Income	Residency Adjustment	Total Personal Income	Personal Income Per Capita (1980 \$)
1980	0	0	0	0	0	0
1981	0	0	0	0	0	0
1982	0	0	0	0	0	0
1983	0	0	0	0	0	0
1984	0	0	0	0	0	0
1985	4134	188	680	0	4626	NC
1986	5971	454	1681	0	11198	NC
1987	12642	576	2183	0	14249	NC
1988	12034	548	2188	0	13674	NC
1989	12047	549	2241	0	13740	NC
1990	12068	550	2303	0	13821	62
1991	12088	551	2366	0	13903	NC
1992	12063	549	2429	0	13943	NC
1993	12137	553	2517	0	14101	NC
1994	12167	554	2607	0	14220	NC
1995	12199	556	2697	0	14340	NC
2000	12341	562	3122	0	14900	102
2005	8651	394	2891	0	11148	NC
2010	569	25	1720	0	2264	71
2015	569	25	1777	0	2321	0

Source: Mountain West Research-North, Inc., 1982.

Note: Details may not sum due to rounding.

NC = not calculated.

TABLE 7.7.2.1-5

Sheridan County Commercial Opportunities  
KME Mine Scenario  
Sheridan County, Wyoming  
1990

Type of Commercial Opportunity	With Project	Baseline	Impact
<u>Retail</u>			
Gasoline Service Station	49	47	2
Eating and Drinking Place	67	65	2
Grocery and Other Food Store	23	22	1
Motor Vehicle Dealers and Auto Supply Store	20	19	1
Clothing and Shoe Store	18	17	1
Lumber, Hardware, and Mobile Home Dealers	22	21	1
Furniture and Household Appliance Stores	15	15	0
Department Stores	4	4	0
Drug, Variety, General Merchandise Stores	27	26	1
Sporting Goods, Hobby, Flowers, Gift, Sewing Stores	25	24	1
Liquor Store	11	10	1
Jewelry Store	8	7	1
Book Store and Newstands	3	3	0
<u>Service</u>			
Hotels, Motels, Commercial Campgrounds	54	52	2
Beauty and Barber Shops	31	30	1
Auto Repair Shops	30	29	1
Legal, Accounting, Advertising, Data Processing	56	54	2
Engineering, Architecture, Surveying	13	13	0
Equipment and Auto Renting and Leasing	9	9	0
Laundries	10	10	0
Appliance, Furniture, and Shoe Repair	14	13	1
Movie Theatres and Bowling Alleys	8	8	0
Janitorial Services	12	12	0
Photographic Studios	6	6	0
Car Washes	4	4	0
Funeral Services	2	2	0
<u>Finance and Real Estate</u>			
Real Estate Office	26	25	1
Insurance Agencies	12	12	0
Personal Credit Institution	7	7	0
Commercial Bank	6	6	0
Savings and Loan Association	1	1	0
<b>TOTAL</b>	<b>593</b>	<b>573</b>	<b>20</b>

Source: Mountain West Research-North, Inc., 1982

Note: Forecast population for 1990: 29,919.

It is anticipated that the additional population and employment generated by the project will cause the trends initiated during the 1970s to continue. With the KME Mine, the population will continue to be younger than it otherwise would be, and the additional employment opportunities created by the mine will attract persons of somewhat greater social diversity than would exist without the project population, in part because the project activities will create a greater flow of persons through the county. The increased income in the region will support greater economic activity and diversity, especially in the greater Sheridan area. An important determinant of the extent of economic diversification will be the perceptions that managers and entrepreneurs develop about the longevity and stability of the increased economic levels. The experience of the early 1980s may inhibit business development, as greater caution will be taken to avoid the risks of over-expansion. The same will be true of governmental decisions regarding facility and service expansion. Although forecasts for additional population will encourage expansion of facilities, the concern for unanticipated downturns is likely to cause decision-makers to delay such actions for as long as possible. Since a wait and see attitude has been typical of the county government in the past, this will not represent a radical departure from their established approach.

During the mid-1980s, the county will need to make provisions for an influx of mine construction workers and supporting population. It is likely that discussions will be held with mine owners concerning the provision of company sponsored worker housing, as the availability of housing, particularly to meet a temporary demand is often a problem and residents of Sheridan are already concerned about the high cost of housing (see Section 7.7.2.3). The ability of county officials to negotiate such mitigation efforts would mark an important milestone in government-industrial relationships.

The increased importance of mining in the area economy will encourage local business and social service (including educational) interests to develop additional linkages to mining. Although in the short run this will provide additional opportunities and diversity in the community, the basic dependence upon mining will increase exposure to the risks of unanticipated downturns in the mining industry and to greater impacts during the phase-out period. Both residents and leaders in the county will become increasingly concerned if efforts for diversification are not pursued and successful. The experience of the early 1980s has created an unease about large expansions that are dependent upon continued mining activities. This is especially true in the Sheridan area which does not have access to the severance tax funds accruing from the mining activities to ease or prevent this bust cycle.

The increased population (due both to baseline and with-project growth) will have small, incremental effects on the change in social organization discussed in Section 4.7.2.2. Most of these effects will be felt at the community level, and are therefore discussed in subsequent sections. Some, however, will be more diffused throughout the county. The increased population will cause additional pressure on the area ranchers to open their land for hunting, fishing, and other outdoor recreational activities. Though most ranchers in the county have traditionally been willing to accommodate such requests, the magnitude of the population will raise the demand for such activities to the level that some ranchers may seek to avoid the issue or to protect themselves by simply closing and posting their land or by charging trespass fees. Interviews with rural residents in Sheridan County indicate that this change in tradition will be made with regret. If widespread, it is likely that such actions would create increased pressure on public lands, decreased satisfaction by both longtime and newcomer residents of the more urbanized areas of the county, and increased incidence of trespassing and vandalism. However, unless active measures are taken to avert such consequences, it appears likely that this outcome will occur.

It is expected that the experience gained by the county during the 1970s will enable it to deal expeditiously with the forecast population growth. It is likely that the handling of growth will prove to be easier than the handling of the decline the county has experienced during the early 1980s and will experience at the turn of the century under the forecast scenario. It is generally easier to plan for and control growth than decline, in part because economic decline and loss of population is usually more thoroughly beyond the control of the local community/county than growth, which can be at least somewhat

controlled by local regulations. In addition, funds have historically been more readily available for dealing with problems during the growth than during the bust cycle.

#### Perceptions of the community and indicators of social well-being

As during the 1970s, the residents of Sheridan County will place different interpretations upon the changes that take place as a result of the mining activity. Most will continue to regret the effect of mining on the local environment, and will be concerned about possible longterm effects on water and agriculture. If area residents perceive that the current trends toward increased landholding by energy companies which removes land from agricultural use are accelerated by the project, many will disapprove. Increased traffic congestion and pressure on housing will also be viewed with displeasure by most area residents, particularly the elderly who feel themselves especially inconvenienced and affected by such change. The transients present in the community during the construction phase of the project will probably be considered a detriment to the community, just as they were during the 1970s. At the same time, most residents genuinely wish the community and county to prosper, and for residents to have satisfying and well-paying jobs. They do not, however, want to sacrifice the amenities, the small-town character, nor the aesthetics of their community.

Aside from the changes in material well-being that are described in the other sections, the incremental changes in demographic and social characteristics of the community due to the project will be slight, and not sufficient to cause predictable effects on behavioral indicators such as crime and suicide. These types of indicators are expected to be much more dramatically affected by changes in baseline conditions (including national trends) than by the project.

#### 7.7.2.3 Housing

As shown in Table 7.7.2.3-1, no housing deficits are forecast to occur in Sheridan County under the KME scenario. More detail on the KME Mine's impact on housing demand in Sheridan subcounty areas is provided in subsequent sections. The actual housing demand forecasts by type of unit for each area under the KME scenario are summarized in Appendix B tables. These forecasts do not take into account the effect of increased incomes on housing demand, which is discussed more fully in Section 2.3.3.

#### 7.7.2.4 Facilities and Services

The projections of facilities and services requirements for Sheridan County do not differ significantly from the baseline projections reported in Section 4.7.2.4. Detailed projections of facilities demand, changes in capacity requirements, and capital outlay for the KME Mine scenario are contained in Appendix C.

The KME Mine projection indicates an incremental requirement for 3.4 beds in the Memorial Hospital of Sheridan County in 1988; 2 in 1996; and 1 in 2002. Detailed projections of facility demand and capacity requirements are contained in Appendix C.

Under the KME scenario, the Sheridan County Division of Public Assistance and Social Services would need to increase its staff from the current level of 13 persons to 15.2 persons in 1995 and 15.7 persons in 2015 (based on the 1982 ratio of 0.0005 staff persons per capita). While the 1995 requirement would be about 0.5 persons above the baseline level, the 2015 requirements are identical under both KME and baseline scenarios. Hence, the KME Mine could result in the need for one additional part-time staff person above baseline needs in 1995.



TABLE 7.7.2.3-1

KME Scenario Forecast  
Housing Unit Demand/Supply  
Sheridan County

Year	Total Demand	Incremental Demand Over Previous Year	Local Supply Response (Limit = 500)	Cumulative (Deficit) Surplus
1980	10,457			
1981	10,959	502	500	(2)
1982	11,041	82	84	0
1983	11,135	94	94	0
1984	11,227	92	92	0
1985	11,702	475	475	0
1986	12,182	480	480	0
1987	12,473	291	291	0
1988	12,640	167	167	0
1989	12,859	219	219	0
1990	13,160	247	247	0
1991	13,237	131	131	0
1992	13,342	106	106	0
1993	13,589	246	246	0
1994	13,731	142	142	0
1995	13,956	225	225	0
1996	14,134	178	178	0
1997	14,236	102	102	0
1998	14,380	144	144	0
1999	14,539	159	159	0
2000	14,759	220	220	0
2005	14,488	-271 for 5 yrs	0	0
2010	15,156	668 for 5 yrs	668 for 5 yrs	0
2015	15,095	-61 for 5 yrs	0	0

Source: Mountain West Research-North, Inc., 1982.

Based on a space standard of 0.1 sq. ft. per capita, space requirements would be 3,052 sq. ft. in 1995 (113 sq. ft. above baseline) and 3,151 sq. ft. in 2015 (equal to baseline). However, if the 1982 space ratio of 0.3763 sq. ft. per capita is to be maintained, then the current 3,400 sq. ft. of space would need to be expanded to 3,933 sq. ft. in 1995 (146 sq. ft. above baseline) and 4,061 sq. ft. in 2015 (equal to baseline). Hence, regardless of the standard used, the incremental demand generated under the KME scenario would be enough to trigger the addition of 100-150 sq. ft. or about one office over that required under the baseline scenario.

#### 7.7.2.5 Fiscal

The KME Mine would have a negative effect on Sheridan County's fiscal balance compared with the baseline ranging from \$33,000 in 1984 to \$100,000 per year between 1987 and 2000. The cumulative negative balance would be approximately \$2 million by 2000.

With the exception of one year of the projection period, the KME Mine scenario would have a slight positive impact (\$2-3,000 per year) on the fiscal balance of the Memorial Hospital of Sheridan County. In 1988, however, a capital outlay of \$259,000 is projected to be necessary to increase capacity by three beds. Although additional bed capacity is also projected for the baseline scenario, the capital outlay under baseline conditions would not occur until 1996. Due primarily to this additional capital outlay, the cumulative fiscal impact of the KME Mine on the hospital district would be a negative \$93,000 by 2005. Details are provided in Appendix C.

#### 7.7.2.6 Schools -- Facilities/Services and Fiscal

##### Sheridan County School District No. 1

No new physical facilities are projected for the KME alternative over those that would be required in the baseline case. A peak total of 104 teachers would be needed between 1988 and 1994, compared to 100 teachers for the same period under baseline conditions. Without corresponding increases in the property tax received by the district, the KME Mine would cause the district to incur higher deficits than baseline conditions. The difference is projected to be approximately an \$800,000 higher cumulative deficit in 2005. Details are provided in Appendix C.

##### Sheridan County School District No. 2

The KME Mine would cause additional junior and senior high school space to be needed in 1985 and 1986. The junior high school requirement would be 9,237 square feet in 1985; the high school requirement would be 25,317 square feet in 1986. The current elementary school capacity of 230,000 square feet would be adequate through 2015. Personnel requirements under the KME scenario would reach 390 teachers in 1992 (15 teachers above the baseline level) and decline to approximately 300 teachers by 2005. Requirements for support personnel would reach 205 workers (10 above the baseline) in 1992 and decline to 157 workers (4 above the baseline) in 2005, and then stabilize.

The fiscal impact of the KME Mine scenario, compared with the baseline, would be negative through 2005 and positive between 2010 and 2015. By 2005, the cumulative fiscal impact (compared with the baseline) would be negative \$5.9 million. The negative impacts further reflect the district's dependence on the property taxes, which is a relatively inelastic source of revenue. Details of these forecasts are provided in Appendix C.



### 7.7.3 Sheridan and Area

#### 7.7.3.1 Introduction

This section presents the KME Mine impact forecasts for the city of Sheridan and the greater Sheridan area. Section 7.7.3.2 presents the population and economic impact forecasts for each area. Section 7.7.3.3 discusses social life in Sheridan and the Sheridan area under the KME scenario. The housing impact forecasts are presented in Section 7.7.3.4. Facilities/services and fiscal forecasts are presented in sections 7.7.3.5 and 7.7.3.6, respectively.

#### 7.7.3.2 Population and Economy

As shown in Table 7.7.3.2-1, population effects in the city of Sheridan under the KME scenario would begin in 1985 at 286 people and then grow rapidly to 777 people in 1987, which represents 4.4 percent of the total population. The population effect would remain at about 650 people through 2000 and then decline to 411 people in 2005 and disappear by 2010. The population effect in the greater Sheridan area would follow a similar pattern, with a peak effect of about 360 people (6 percent of the total population) during most of the operations period.

In 1990, when operations employment at the KME Mine would have reached its peak, employment in Sheridan would be 9,268 workers, or 307 workers above the baseline employment of 8,961 workers. In the greater Sheridan area, employment would be 2,670 workers, or 184 workers above the baseline employment of 2,486 workers. By 1990, labor income in the city of Sheridan would be \$133.7 million, or \$9.8 million above baseline labor income of \$126.9 million. In the greater Sheridan area, 1990 total labor income would be \$38.9 million, or \$4.0 million above baseline labor income of \$34.9 million.

#### 7.7.3.3 Social Life and Cultural Diversity

As was shown in Section 7.7.3.2, the city of Sheridan and surrounding area (hereafter called Sheridan) will experience two periods of impact from the proposed project -- mine construction and the initial operating period scheduled for the mid-1980s, and the closing of the mine at the beginning of the century. Between these two transitional periods, the population effects of the project are forecast to be moderate (approximately 1,000 persons) and nearly stable. By the end of the forecast period, all population and employment effects of the project will have ceased.

As discussed in Section 7.7.2.2, the additional population due to the project will build upon the trends established during the 1970s and continued by the baseline population and employment growth. During the forecast period, the community of Sheridan will have the benefit of its experience with growth during the 1970s. Community leaders and residents alike can therefore be expected to be better prepared for, less surprised by, and therefore less anxious about the changes occurring during the forecast period. Because the incremental population growth due to the project is limited, it should not pose a particular problem for decision-makers, especially if adequate communication between the company and the community takes place.

It is anticipated that the downturn in employment and population during the phase-out period of the project will cause the community more problems than will the growth period. The loss of a major component of the local economy -- particularly one which is a basic industry and which therefore has created many additional jobs which will also be lost -- is a shock to any community. Ramifications of the closure will be felt throughout the economy, and, because of the extent to which local residents will have participated in these jobs, throughout the population as well. These effects can be somewhat minimized if the phase-

TABLE 7.7.3.2-1  
KME Scenario Impact  
Population  
Sheridan County Allocation Areas

Year	Sheridan County	Sheridan City	Greater Sheridan Area	Ranchester- Dayton Area	Rest of County
1980	0	0	0	0	0
1981	0	0	0	0	0
1982	0	0	0	0	0
1983	0	0	0	0	0
1984	0	0	0	0	0
1985	437	286	116	33	2
1986	991	633	279	80	1
1987	1,300	777	395	118	11
1988	1,146	673	358	111	6
1989	1,150	673	359	112	6
1990	1,149	671	362	113	4
1991	1,147	667	363	113	4
1992	1,141	661	364	114	3
1993	1,140	658	365	114	4
1994	1,149	663	368	116	3
1995	1,130	650	364	115	2
1996	1,124	644	365	115	1
1997	1,117	639	362	115	1
1998	1,122	643	364	115	0
1999	1,106	631	363	115	-1
2000	1,105	629	363	115	0
2005	725	411	238	76	0
2010	0	0	0	0	0
2015	0	0	0	0	0

Source: Mountain West Research-North, Inc., 1982.

Note: Details may not sum due to rounding.

out period is anticipated and scheduled. Other changes in economic structure and governmental activities and services are addressed elsewhere in the chapter and are not repeated here.

The changes that are expected to occur in social organization as a consequence of the project -- over and above those due to baseline growth -- are not significant. Once the process of change, as described in chapters 3 and 4 have been set in motion, the incremental effects of the additional mine will be slight, creating a difference in the degree rather than a difference in the kind of changes that would occur.

Over the forecast period, the process of informally dividing the community into multiple social groupings will continue with the influx of mine construction workers and miners who will surely be a distinguishable group. Based on previous reactions, the issue of union membership may come to play an increasing role in the formation of these informal groupings. It should be noted, however, that many of these patterns will have already been set by the miners and other workers involved with the baseline mines.

The magnitude of mining in the economy of the area with the addition of the proposed project may actually reduce the diversity of the economic base of the region, as the economy becomes further dominated by the mining sector. It is expected, however, that other forces such as tourism and regional trade, as well as the changing age structure and an increasing emphasis by community leaders on economic diversification will provide some countervailing pressure, reducing this potentially adverse effect.

The new social diversity and the increased economic activities of the area will cause the political procedures and structures of the community to undergo further adjustment along the lines suggested in Chapter 4. As the new coal mine is added to area economic activities, the influential position of mining interests will be further enhanced as their dominance in employment, financial resources, and extra-local linkages increases and as their linkages within the community become more firmly established. This in turn is likely to promote a counter response by the nonmining interests in the community. As a result, decision-making will become more complex and formalized, though the change over baseline conditions will probably not be marked. In sum, it is expected that the process of increased diversity/complexity that was initiated by the coal development activities of the 1970s will be continued and enhanced, but that no major new trends will be introduced by the project.

The project will similarly accelerate the process of opening and widening the distribution of community resources and power that was also initiated during the 1970s. As the incoming population becomes established in and familiar with the community, they are likely to make demands for access to resources, particularly positions of power. The increasing numbers of corporate executives and managers who are established members of the community is expected to accelerate this process. In the near term, it is anticipated that positions of power will be attained by newcomers most frequently by appointment or participation on voluntary committees and organizations. Over the longer term, especially as the proportion of newcomers in the population increases, elected positions are likely to become more accessible to a wider variety of community residents. These changes are expected to occur under baseline conditions; the effect of the project will be to accelerate and intensify them. Although the status system has already begun to change -- with the declining importance of ranching and the significant generational transition that is occurring (as the "pioneers" die out) -- the strength of the old system and its continuing appeal to many of the newcomers will make the transition slow and gradual. It is not possible to state in advance what new patterns of status criteria will emerge, but it is likely that they will be somewhat more similar to national norms than they are now.

As discussed in chapters 3 and 4, Sheridan has always cultivated effective outside linkages. Consequently, the project, which will tend to increase the opportunities and importance of outside linkages, will have little important effect on the community in this regard.

Similarly, the process by which the interaction and communication patterns in the community will be disaggregated into clusters rather than integrated into a single unit will continue. As discussed in chapters 3 and 4, the integration of community residents are forecast to take place to a greater and greater extent through this more diffuse process as community size and diversity make it impossible for residents to be personally familiar with one another. Consequently, the type of community integration and affiliation experienced in the earlier days of Sheridan are not expected to be reestablished over the forecast period, under either baseline or with-project conditions.

As a consequence, the coordination of community resources and initiation of new programs are likely to become more complex and difficult, placing new demands upon leaders and followers alike. At this point, it does not appear likely that severe difficulties will be encountered in managing conflict, although it will probably become more difficult to gain active collaboration on a community-wide basis.

Sheridan has already gone past the point that there is much chance that things will return to "be like they were in the old days". The community has already changed. Most of the growth that has occurred has been seen as beneficial. Additional growth is generally viewed as good for the community. Once a community has gone past the point where the past is irrecoverable -- as in the transition from a shared history to a community of persons with diverse backgrounds -- fewer and fewer of the new changes are considered to be of great importance. This is Sheridan's present position.

It is anticipated that Sheridan will continue to be seen as a good place to live, with a good quality of life, good recreational opportunities, and pleasant people over the course of the forecast period. Nevertheless, longtime residents are likely to regret the loss of the oldtime sense of community and the increasing urban characteristics such as higher crime rates, less sense of personal security and familiarity, and diminished importance of agricultural values.

Sheridan has always been an elite community; the presence of those with wealth and status -- and the importance given to these characteristics -- has been one of its more noteworthy characteristics. The infusion of new population, including the new mine-related workers, will gradually erode this elitism. Those who have lived in Sheridan for a very long time -- who have graduated from high school there -- are likely to regret the changes that will occur during the next twenty years. These feelings will not be fully shared by the more recent arrivals, but it is likely that even many of them, attracted as they were by these very attributes, will feel some loss as they compare the community at the end of the forecast period, with the way it was when they first came. If the growth in population and employment proceeds as forecast, it is likely that Sheridan will become increasingly similar to national norms, and will lose some of its distinctive character.

#### 7.7.3.4 Housing

As shown in Table 7.7.3.4-1, the housing demand impacts of the KME Mine in the city of Sheridan would begin in 1985 and end after 2005. During this period, approximately 300 to 350 additional housing units would be needed by the direct and indirect population associated with the KME Mine. Similarly, about 100 to 130 additional units would be needed in the greater Sheridan area during the same time period. As noted in Section 7.7.2.3, this additional demand is within the current capacity of local builders.

#### 7.7.3.5 Facilities and Services

The KME Mine scenario projection of facilities and services requirements is similar to that projected for the baseline scenario. However, because of the larger population base of the KME Mine scenario, the facility sizing and capital outlay amounts would be greater. Detailed projections are presented in Appendix C.



TABLE 7.7.3.4-1  
KME Scenario Impact  
Housing Demand  
Sheridan County Allocation Areas  
(Housing Units)

Year	Sheridan County	Sheridan City	Greater Sheridan Area	Ranchester- Dayton Area	Rest of County
1980	0	0	0	0	0
1981	0	0	0	0	0
1982	0	0	0	0	0
1983	0	0	0	0	0
1984	0	0	0	0	0
1985	157	112	33	12	0
1986	359	248	81	29	0
1987	497	333	116	42	5
1988	453	301	107	40	3
1989	462	307	110	41	3
1990	469	311	112	42	2
1991	477	315	115	43	3
1992	483	318	117	44	2
1993	490	322	119	45	2
1994	499	328	121	46	2
1995	499	327	122	46	2
1996	505	330	124	47	2
1997	510	334	125	48	2
1998	520	341	128	49	2
1999	521	340	129	49	1
2000	527	344	132	50	1
2005	346	226	87	33	0
2010	0	0	0	0	0
2015	0	0	0	0	0

Source: Mountain West Research-North, 1982.

Note: Details may not sum due to rounding.

#### 7.7.3.6 Fiscal

The KME Mine scenario would result in higher negative fiscal balances (compared with the baseline) in those years for which capital outlays are projected. This would be due to the larger sizing of facilities based on the higher demand level. However, during the period 1986 through 1990, when no capital outlays are projected, the operating fiscal balances are the same for the KME Mine and baseline scenarios. The KME Mine scenario is, therefore, projected to have a negligible impact on the operating fiscal balance of the city. The ability to respond further reflects the city's strong dependence on elastic revenue sources, as shown in Appendix C.

#### 7.7.4 Ranchester, Dayton, and Area

##### 7.7.4.1 Introduction

This section presents the KME Mine impact forecasts for Ranchester, Dayton, and the surrounding area. Section 7.7.4.2 presents the population and economic impact forecasts. Section 7.7.4.3 discusses social life in the Ranchester-Dayton area under the KME scenario. The housing impact forecasts are presented in Section 7.7.4.4. Facilities/ services and fiscal forecasts are discussed in sections 7.7.4.5 and 7.7.4.6, respectively.

##### 7.7.4.2 Population and Economy

As shown in Table 7.7.3.2-1, population effects in the Ranchester-Dayton area under the KME scenario would increase from 33 people in 1985 to about 115 people (about 5 percent of the total population) for most of the operations period. The population effect would decrease to 76 people by 2005 and disappear by 2015. In 1990, when the mine would have reached full operations employment, employment in the Ranchester-Dayton area would be 1,007 workers, or 47 workers above baseline employment of 960 workers. By 1990, labor income of \$15.0 million would be \$1.1 million above baseline labor income of \$13.9 million.

##### 7.7.4.3 Social Life and Cultural Diversity

As was discussed in Section 7.7.4.2, the Ranchester-Dayton area will experience two periods of transition in population due to the project. The first will occur in the mid-1980s, when mine construction and operations are initiated, after which the population effects due to the project will remain nearly constant until the second transition occurs during phase-out at the turn of the century. The population and employment effects of the KME Mine on the two communities is forecast to be very slight -- a maximum of just over 115 persons divided between the two communities. Since both Ranchester and Dayton have had extensive experience with the effects of surface mining (from the mid-1970s to the present), it is not anticipated that this degree of population and employment change will have more than barely perceptible effects on the two communities. Baseline changes will be considerably more important than those introduced by the new mine. The net effect of the KME Mine on these two communities will be to reinforce the trends initiated during the 1970s. The new mine is not likely to initiate significant new changes in social organization or perceptions of community in either Ranchester or Dayton.

Both communities have felt themselves adversely affected by the slowdown in mining that occurred during the early 1980s. Residents generally appear to favor moderate growth; the incremental effects of the project would fall within the range considered desirable. However, the experience of the early 1980s and observations about the uneven history of coal resource communities has led residents in both Ranchester and Dayton to favor the development of alternative basic industries and employment and to reduce their dependence upon coal-related activities.



Throughout the forecast period, the project activities will not substantially alter the character of the two communities -- they will remain essentially small, rural communities with strong ties to Sheridan. Aside from the changes in income, employment, housing, and public facilities/services noted in other sections, the anticipated effects of the project on social well-being indicators is expected to be very slight, and well within the margin of error of the baseline estimates.

#### 7.7.4.4 Housing

As shown in Table 7.7.3.4-1, the housing demand impacts of the KME Mine in the Ranchester-Dayton area would begin in 1985 and end after 2005. During this period, approximately forty to fifty additional housing units would be needed by the direct and indirect population associated with the KME Mine. As noted in Section 7.7.2.3, this additional demand is within the current capacity of local builders.

#### 7.7.4.5 Facilities and Services

The facilities and services requirements projected for the KME Mine scenario for both Ranchester and Dayton are similar to those projected for the baseline scenario. However, the sizing and capital outlay amounts for the facilities projected using the decision rule model would be greater due to the larger population base. Detailed projections are contained in Appendix C.

#### 7.7.4.6 Fiscal

The impact of the KME Mine scenario on cumulative fiscal balances would be less than \$100,000 through 2000 for both Ranchester and Dayton (see Appendix C).

### 7.7.5 Rest of County

#### 7.7.5.1 Introduction

This section presents the KME Mine impact forecasts for the rest of Sheridan County. Section 7.7.5.2 presents the population and economic impact forecasts for the area. Because the KME Mine would not have significant population impacts in the area, detailed housing, facilities/services, and fiscal forecasts are not presented here.

#### 7.7.5.2 Population and Economy

As shown in Table 7.7.3.2-1, population impacts in the rest of Sheridan County under the KME scenario would reach a peak of 11 people in 1987, but otherwise be no more than 6 people during the remainder of the forecast period. In 1990, when the mine would have reached full operations employment, employment in the rest of Sheridan County would be 1,904 workers, or 8 workers above baseline employment of 1,896 workers. In 1990, labor income of \$24.6 million would be \$1 million or about \$100,000 above baseline labor income of \$24.5 million.

Throughout the forecast period, the project activities will not substantially alter the character of the two communities -- they will remain essentially small, rural communities with strong ties to Sheridan. Aside from the changes in income, employment, housing, and public facilities/services noted in other sections, the anticipated effects of the project on social well-being indicators is expected to be very slight, and well within the margin of error of the baseline estimates.

#### 7.7.4.4 Housing

As shown in Table 7.7.3.4-1, the housing demand impacts of the KME Mine in the Ranchester-Dayton area would begin in 1985 and end after 2005. During this period, approximately forty to fifty additional housing units would be needed by the direct and indirect population associated with the KME Mine. As noted in Section 7.7.2.3, this additional demand is within the current capacity of local builders.

#### 7.7.4.5 Facilities and Services

The facilities and services requirements projected for the KME Mine scenario for both Ranchester and Dayton are similar to those projected for the baseline scenario. However, the sizing and capital outlay amounts for the facilities projected using the decision rule model would be greater due to the larger population base. Detailed projections are contained in Appendix C.

#### 7.7.4.6 Fiscal

The impact of the KME Mine scenario on cumulative fiscal balances would be less than \$100,000 through 2000 for both Ranchester and Dayton (see Appendix C).

### 7.7.5 Rest of County

#### 7.7.5.1 Introduction

This section presents the KME Mine impact forecasts for the rest of Sheridan County. Section 7.7.5.2 presents the population and economic impact forecasts for the area. Because the KME Mine would not have significant population impacts in the area, detailed housing, facilities/services, and fiscal forecasts are not presented here.

#### 7.7.5.2 Population and Economy

As shown in Table 7.7.3.2-1, population impacts in the rest of Sheridan County under the KME scenario would reach a peak of 11 people in 1987, but otherwise be no more than 6 people during the remainder of the forecast period. In 1990, when the mine would have reached full operations employment, employment in the rest of Sheridan County would be 1,904 workers, or 8 workers above baseline employment of 1,896 workers. In 1990, labor income of \$24.6 million would be \$1 million or about \$100,000 above baseline labor income of \$24.5 million.

## 7.8 Mitigation and Enhancement Measures

### 7.8.1 Introduction

As discussed in the preceding section of this chapter, the KME Mine development would primarily affect Sheridan County, the city of Sheridan, and Sheridan School District No. 2. No significant impacts are forecast in Big Horn County, although an important enhancement opportunity would exist in the increased employment of local residents -- particularly, Native Americans -- on the KME project.

### 7.8.2 Sheridan Area

In the Sheridan area, the principal impacts concern the requirements of additional facilities and services under the county government with the accompanying fiscal impacts on a budget that is projected to experience substantial deficits under the baseline case. Bearing in mind the tentative nature of project timing and impact magnitudes, appropriate mitigation measures would be basically those that the county should adopt to avoid deficits under the baseline case: actively seek federal and state grants for road and bridge expenses, continue to approve the one-percent optional sales tax, and encourage residential growth within incorporated areas where it can be accommodated in a more cost effective manner.

Using present bed/population standards, it is projected that the KME scenario would generate peak requirements of four additional beds at the Sheridan County Memorial Hospital. However, present trends in treatment methods and toward shorter lengths of stay per patient indicate that bed requirements may be overestimated. Occupancy rates should be monitored and additional beds added only when the need is confirmed.

The proposed KME project would have a minor, negative incremental effect on the fiscal balance of School District No. 1, suggesting the need to monitor enrollment increases once development proceeds. Appropriate mitigation alternatives are listed in the working paper "Generic Mitigation Program."

The baseline requirement for both junior high and high school facilities would be increased with the KME project. Both operating and capital cost effects due to the project would total a cumulative budget deficit of nearly \$6 million by the year 2005. The potential magnitude of this problem makes it an important mitigation topic, in which direct company involvement would be desirable, if the KME Mine is developed.

Given the present revenue structures of the communities of Sheridan, Ranchester and Dayton, impacts on municipal budgets of the KME project would be negligible. As long as these communities pursue development policies that ensure that the actual capital and operating/maintenance costs of sewage treatment, water supply, and other public infrastructure are covered by user fees and charges, no significant impacts are projected.

Finally, projected increases in housing demand within the Sheridan area can be easily met by existing builders and developers.

### 7.8.3 Crow Reservation

For a discussion of mitigation and enhancement measures for the Crow Reservation, see the Socioeconomic Assessment Report (AITS 1983).

8. CONSOL MINE: SITE-SPECIFIC  
IMPACT ANALYSIS





## 8. CONSOL MINE: SITE-SPECIFIC IMPACT ANALYSIS

### 8.1 Introduction

This chapter presents the impacts forecast for the study region under the Consol Mine site-specific scenarios.

As noted in Chapter 5, the Consol scenarios consist of a Consol Level 1 scenario and a Consol Level 2 scenario. Under the Consol Level 1 scenario, the mine would be constructed in the mid 1980s and be operated through 1998. The Consol Level 2 scenario is identical to the Consol Level 1 scenario through 1996 but in 1997, additional construction would take place and the mine would be operated at a higher level through 2015.

The impact forecasts are presented for the region, its counties, and its communities and jurisdictions, with emphasis placed on the communities and jurisdictions that would be most affected by the Consol Mine.

For each entity, population, economic, social life and cultural diversity, housing, facilities/services, and fiscal baseline forecasts are presented. In addition, transportation, outdoor recreation, and land use baseline forecasts are presented on a regional level.

The chapter is organized into six sections. Section 8.2 presents the assumptions used to make the Consol Mine scenario impact forecasts. Section 8.3 presents the impact forecasts for the region. Section 8.4 presents the impact forecasts for Big Horn County and its communities. The impact forecasts for the Crow and Northern Cheyenne Indian reservations are presented in sections 8.5 and 8.6, respectively. Section 8.7 presents the impact forecasts for Sheridan County and its communities.

### 8.2 Assumptions

The assumptions used to develop the impact forecasts for the site-specific scenario are discussed in chapters 2 and 5, and are not repeated here. In addition, the population and employment forecasts for the Consol levels 1 and 2 scenarios presented in Chapter 6 are utilized throughout the analysis.

### 8.3 Overview of Impacts

#### 8.3.1 Introduction

This section, which is divided into eight subsections, presents an overview of the impacts that are forecast to occur at a regional level under the Consol Mine scenario. Section 8.3.2 presents the population and economic impact forecasts. Section 8.3.3 discusses the effects of the Consol Mine on social life and cultural diversity. A summary of housing impacts forecast for the region is presented in Section 8.3.4. Facilities/services and fiscal forecasts are discussed in sections 8.3.5 and 8.3.6, respectively. Section 8.3.7 addresses the impacts of the Consol Mine scenario on the region's transportation network. Finally, sections 8.3.8 and 8.3.9 present an analysis of outdoor recreation and land use conditions, respectively, under the Consol scenario.

### 8.3.2 Population and Economy

As shown in Table 8.3.2-1, the Consol Level 1 Mine's population effects in the study region would begin in 1985 and last through 2015. During the 1985 to 1987 construction period, the population impact is forecast to reach a maximum of 2,762 people in 1987, when both construction and operations work forces would be present. During the operations period, which would begin in 1987, the population effects are forecast to reach about 2,800 people by 1989 when the total regional population would be 44,633 people and then remain relatively constant through 1994 before declining gradually to 42 people in 2004. At its peak, therefore, the population effects of the Consol Level 1 Mine would account for about 6.4 percent of the total population of the region. After 2004, the Consol Level 1 population is forecast to be less than the forecast baseline population. This apparent anomaly is explained by the fact that during the early period of Consol Level 1 impacts, the in-migrating population would be younger, with a labor force participation rate that would be higher than the participation rate of the existing population. These in-migrants would raise the overall labor force participation rate of the population, increase the number of jobs per household, and lower the age distribution of the population. When the number of job opportunities declines with the closure of Consol 1 Mine in 1999, the higher jobs to population ratio established among the residents would cause out-migration (of a younger population) resulting in a smaller local population than under baseline conditions. This also explains negative births -- the remaining with-project population would be both older and smaller than the baseline population, and consequently would have fewer births than the population whose demographic structure had not been altered by the project. In actuality, it is probable that the in-migrating population would adjust their labor force participation rate and that the baseline and Consol Level 1 population would be nearly equal between 2000 and 2015.

As shown in Table 8.3.2-2, the Consol Level 2 Mine's population effects would be identical to those of the Consol Level 1 Mine through 1996 but would then increase to the 4,400 person level through 2010, as the Consol Mine is expanded. In 2010, the population effects of the Consol Level 2 Mine would account for 8.4 percent of the region's total population of 52,694 people. After 2010, the population impact would decrease to 2,093 people in 2015.

As shown in Table 8.3.2-3, the total employment impact under the Consol Level 1 scenario during the construction period would be 15 workers in 1985, 663 workers in 1986, and 1,403 workers in 1987, when both construction and operations work forces would be present. In 1987, the Consol Level 1 Mine would account for 7.1 percent of total employment in the region of 19,754 workers. Total employment effects during the operations period are forecast to remain constant at about 1,400 workers through 1995 and then decline to 62 workers in 1999 after the mine is closed. After the mine is closed, the higher income level in the region would continue to support employment impacts of 60 to 90 workers through 2015. As shown in the table, the largest employment increases are forecast to occur in the mining and construction sectors, which in turn stimulate employment impacts in the other sectors.

As shown in Table 8.3.2-4, the Consol Level 2 scenario employment impacts in the study region would be identical to those of the Consol Level 1 scenario through 1995 but would then increase to the 2,300 worker level through 2010 when the Consol Level 2 Mine would account for 9.2 percent of total regional employment of 25,605 workers. By 2015, the Consol Level 2 employment impacts would have declined to 1,132 workers.

As shown in tables 8.3.2-5 and 8.3.2-6, the employment impacts noted above would be about evenly divided between basic and nonbasic jobs in all of the forecast years for both scenarios.

Table 8.3.2-7 presents the income impacts that are forecast to occur under the Consol Level 1 scenario. As shown, the total personal income that would accrue to study region residents as a result of the Consol Level 1 Mine would peak at \$36 million per year during the operations period and then remain at about \$3-5 million per year after the mine is closed. During the operations period, project-related personal income would constitute approximately 8 percent of total personal income in the region. As shown in Table 8.3.2-8, the Consol Level 2 Mine's impacts on personal income would be identical to those of the

TABLE 8.3.2-1

Consol Level 1 Scenario Impact  
Population  
Study Region

Year	Total Population	Births	Deaths	Employment- Related Migration	Non-employment Related Migration	Total Change
1980	0	0	0	0	0	0
1981	0	0	0	0	0	0
1982	0	0	0	0	0	0
1983	0	0	0	0	0	0
1984	0	0	0	0	0	0
1985	27	0	0	27	0	27
1986	1375	0	0	1347	-0	1347
1987	2762	25	2	1367	-3	1391
1988	2401	51	5	-401	-5	-350
1989	2845	46	5	407	-5	453
1990	2798	53	6	-87	-6	-46
1991	2816	49	7	-18	-5	19
1992	2796	46	7	-53	-5	-20
1993	2794	43	7	-31	-6	-1
1994	2820	40	8	-0	-6	25
1995	2777	39	9	-65	-6	-41
2000	1566	2	10	-208	-5	-201
2005	-130	-27	9	-134	-2	-153
2010	-88	-11	10	33	0	12
2015	-28	-4	3	19	0	12

Source: Mountain West Research-North, Inc., 1982.

Notes: Details may not sum due to rounding.

All values except total population represent annual changes.

TABLE 8.3.2-2  
Consol Level 2 Scenario Impact  
Population  
Study Region

Year	Total Population	Births	Deaths	Employment- Related Migration	Non-employment Related Migration	Total Change
1980	0	0	0	0	0	0
1981	0	0	0	0	0	0
1982	0	0	0	0	0	0
1983	0	0	0	0	0	0
1984	0	0	0	0	0	0
1985	27	0	0	27	0	27
1986	1375	0	0	1347	-0	1347
1987	2762	25	2	1367	-3	1387
1988	2401	51	5	-401	-5	-360
1989	2845	46	5	407	-5	443
1990	2798	53	6	-87	-6	-46
1991	2816	49	7	-18	-5	17
1992	2796	46	7	-53	-5	-20
1993	2794	43	7	-31	-6	-1
1994	2820	40	8	-0	-6	25
1995	2777	39	9	-65	-6	-42
2000	4372	66	16	-115	-11	-75
2005	4378	57	21	-19	-10	6
2010	4433	53	24	-3	-9	16
2015	2093	24	12	-1174	-9	-1171

Source: Mountain West Research-North, Inc., 1982.

Notes: Details may not sum due to rounding.

All values except total population represent annual changes.

TABLE 8.3.2-3  
Consol Level 1 Scenario Impact  
Total Employment by Sector  
Study Region

Year	Ag Propri etors	Ag Labor	Mining	Con struc tion	Manu factu ring	TCPU	Trade	FIRE	Ser vices	Gov ern ment	Other +com.	Total
1980	0	0	0	0	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0	0	0	0	0
1984	0	0	0	0	0	0	0	0	0	0	0	0
1985	0	0	0	8	0	0	2	0	1	2	0	15
1986	0	0	198	149	18	19	95	12	61	108	0	663
1987	0	0	448	260	40	67	202	27	129	229	0	1403
1988	0	0	538	37	35	77	172	23	114	201	0	1200
1989	0	0	604	42	43	108	205	26	132	232	0	1394
1990	0	0	604	43	43	108	206	26	132	233	0	1399
1991	0	0	604	43	43	108	207	27	133	235	0	1403
1992	0	0	604	43	43	109	208	27	134	236	0	1406
1993	0	0	604	43	44	109	209	27	135	238	0	1411
1994	0	0	604	44	44	109	211	27	136	239	0	1416
1995	0	0	604	44	44	110	212	27	137	241	0	1422
2000	0	0	0	3	3	3	16	2	10	20	0	61
2005	0	0	0	4	4	4	19	2	13	25	0	73
2010	0	0	0	4	4	6	22	3	14	28	0	83
2015	0	0	0	5	5	7	25	4	17	30	0	92

Source: Mountain West Research-North, Inc., 1982.

Note: Details may not sum due to rounding.



TABLE 8.3.2-4

Consol Level 2 Scenario Impact  
Total Employment by Sector  
Study Region

Year	Ag Propri etors	Ag Labor	Mining	Con struc tion	Manu factu ring	TCPU	Trade	FIRE	Ser vices	Gov ern ment	Other +com.	Total
1980	0	0	0	0	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0	0	0	0	0
1984	0	0	0	0	0	0	0	0	0	0	0	0
1985	0	0	0	8	0	0	2	0	1	2	0	15
1986	0	0	198	149	18	19	95	12	61	108	0	663
1987	0	0	448	260	40	67	202	27	129	229	0	1403
1988	0	0	538	37	35	77	172	23	114	201	0	1200
1989	0	0	604	42	43	108	205	26	132	232	0	1394
1990	0	0	604	43	43	108	206	26	132	233	0	1399
1991	0	0	604	43	43	108	207	27	133	235	0	1403
1992	0	0	604	43	43	109	208	27	134	236	0	1406
1993	0	0	604	43	44	109	209	27	135	238	0	1411
1994	0	0	604	44	44	109	211	27	136	239	0	1416
1995	0	0	604	44	44	110	212	27	137	241	0	1422
2000	0	0	938	70	74	203	347	44	219	386	0	2284
2005	0	0	938	73	76	206	358	45	226	399	0	2324
2010	0	0	936	76	78	208	368	47	234	413	0	2368
2015	0	0	494	35	34	73	165	21	33	194	0	1132

Source: Mountain West Research-North, Inc., 1982.

Note: Details may not sum due to rounding.

TABLE 8.3.2-5

Consol Level 1 Scenario Impact  
Employment by Type  
Study Region

Year	Total	Non Basic	Basic Total	Basic Non Project	Indirect Basic	Basic Project O&M	Project Construc- tion-Perm	Project Construc- tion-NLoc.
1980	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0
1984	0	0	0	0	0	0	0	0
1985	15	7	8	0	0	0	2	5
1986	663	324	339	0	15	198	47	78
1987	1403	687	716	25	30	448	80	132
1988	1200	602	598	41	19	538	0	0
1989	1394	694	700	66	30	604	0	0
1990	1399	698	700	66	30	604	0	0
1991	1403	702	700	66	30	604	0	0
1992	1406	705	700	66	30	604	0	0
1993	1411	711	700	66	30	604	0	0
1994	1416	716	700	66	30	604	0	0
1995	1422	721	700	66	30	604	0	0
2000	61	61	0	0	0	0	0	0
2005	73	73	0	0	0	0	0	0
2010	83	83	0	0	0	0	0	0
2015	93	93	0	0	0	0	0	0

Source: Mountain West Research-North, Inc., 1982.

Notes: Details may not sum due to rounding.

"Basic project O & M" and "Indirect Basic" represent direct and indirect basic coal mining employment, respectively. No mines are assumed to operate in 2015.

TABLE 8.3.2-6

Consol Level 2 Scenario Impact  
Employment by Type  
Study Region

Year	Total	Non Basic	Basic Total	Basic Non Project	Indirect Basic	Basic Project O&M	Project Construc- tion-Perm	Project Construc- tion-NLoc.
1980	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0
1984	0	0	0	0	0	0	0	0
1985	15	7	8	0	0	0	2	5
1986	663	324	339	0	15	198	47	78
1987	1403	687	716	25	30	448	80	132
1988	1200	602	598	41	19	538	0	0
1989	1394	694	700	66	30	604	0	0
1990	1399	698	700	66	30	604	0	0
1991	1403	702	700	66	30	604	0	0
1992	1406	705	700	66	30	604	0	0
1993	1411	711	700	66	30	604	0	0
1994	1416	716	700	66	30	604	0	0
1995	1422	721	700	66	30	604	0	0
2000	2284	1152	1131	133	60	938	0	0
2005	2324	1192	1131	133	60	938	0	0
2010	2368	1237	1131	133	60	938	0	0
2015	1132	569	563	37	32	494	0	0

Source: Mountain West Research-North, Inc., 1982.

Notes: Details may not sum due to rounding.

"Basic project O & M" and "Indirect Basic" represent direct and indirect basic coal mining employment, respectively. No mines are assumed to operate in 2015.

TABLE 8.3.2-7  
 Consol Level 1 Scenario Impact  
 Personal Income  
 Study Region  
 (1980 \$000)

Year	Total Labor Income	FICA Payments	Non-labor Income	Residency Adjustment	Total Personal Income	Personal Income Per Capita (1980 \$)
1980	0	0	0	0	0	0
1981	0	0	0	0	0	0
1982	0	0	0	0	0	0
1983	0	0	0	0	0	0
1984	0	0	0	0	0	0
1985	310	15	47	0	342	NC
1986	14611	729	2314	0	16197	NC
1987	30853	1533	5053	0	34373	NC
1988	26947	1323	4691	0	30315	NC
1989	30997	1518	5454	0	34933	NC
1990	31071	1521	5636	0	35185	215
1991	31117	1523	5781	0	35375	NC
1992	31120	1524	5928	0	35524	NC
1993	31226	1528	6110	0	35808	NC
1994	31293	1532	6306	0	36068	NC
1995	31364	1535	6505	0	36334	NC
2000	773	35	2353	0	3092	-228
2005	945	43	2821	0	3723	0
2010	1084	49	3227	0	4262	106
2015	1214	55	3563	0	4722	100

Source: Mountain West Research-North, Inc., 1982.

Notes: Details may not sum due to rounding.

The personal and per capita figures do not include Crow dividends from royalties and a possible Crow severance tax.

NC = not calculated.

TABLE 8.3.2-8

Consol Level 2 Scenario Impact  
 Personal Income  
 Study Region  
 (1980 \$000)

Year	Total Labor Income	FICA Payments	Non-labor Income	Residency Adjustment	Total Personal Income	Personal Income Per Capita (1980 \$)
1980	0	0	0	0	0	0
1981	0	0	0	0	0	0
1982	0	0	0	0	0	0
1983	0	0	0	0	0	0
1984	0	0	0	0	0	0
1985	310	15	47	0	342	NC
1986	14611	729	2314	0	16197	NC
1987	30853	1533	5053	0	34373	NC
1988	26947	1323	4691	0	30315	NC
1989	30997	1518	5454	0	34933	NC
1990	31071	1521	5636	0	35185	215
1991	31117	1523	5781	0	35375	NC
1992	31120	1524	5928	0	35524	NC
1993	31226	1528	6110	0	35808	NC
1994	31293	1532	6306	0	36068	NC
1995	31364	1535	6505	0	36334	NC
2000	49817	2436	10661	0	58043	356
2005	50389	2463	12134	0	60060	0
2010	51050	2493	13862	0	62416	381
2015	24313	1192	6620	0	29841	187

Source: Mountain West Research-North, Inc., 1982.

Notes: Details may not sum due to rounding.

The personal and per capita figures do not include Crow dividends from royalties and a possible Crow severance tax.

NC = not calculated.



Consol 1 Mine through 1995 but then increase rapidly to \$62.4 million in 2010, and decline to \$29.8 million in 2015 when employment at the Consol Level 2 Mine would begin to taper off. During the Consol Level 2 mine's peak operations period, project-related personal income would constitute approximately 12 percent of total personal income in the region. The Consol Level 1 Mine's impact on per capita personal income in 1990 would be to raise it from \$9,103 (baseline) to \$9,318, a difference of \$215. In 2000, the difference between the Consol Level 1 scenario and baseline per capita income is forecast to be -\$228 as population grows faster than income. By 2010, it is forecast to have increased to \$106. Under the Consol Level 2 scenario, the impacts on per capita income in the years 2000 and 2010 would be \$356 and \$381, respectively.

### 8.3.3 Social Life and Cultural Diversity

The anticipated effects of the Consol Mine operations on the social life and cultural diversity of the non-Crow areas of the study region are slight. The proposed mine will bolster the area economy, as discussed in Section 8.3.2, and will generate additional revenues for the state of Montana, for Big Horn County, and for the city and county of Sheridan without increasing the population of these areas by a large increment. Since coal mining of the nature proposed for the Consol Mine is already an established activity in the study area, at the levels proposed, the Consol mine will have limited effects on the economic, political, or social diversity and complexity of the study region, with the possible exception of the rural Decker communities (see Section 8.4.4.3 below).

Continuation of coal mining activities in the region should act to maintain or supplement the outside linkages that area governments, businesses, and individuals have established; the plans for the project have already been influential in the decision of the company to locate an office in Sheridan. It is anticipated that an expansion of corporate activities will occur under this scenario. The linkages between industry and government will probably become firmer, as both parties gain experience in collaborative planning and response.

The continuation of mining and the maintenance of mining level incomes will buttress the trends altering the local stratification systems that were initiated during the 1970s, and which will continue under the baseline scenario. The extent of the change will be subdued since coal mining has had such a long tradition in the region, and constitutes an important baseline activity (see discussion in chapters 3 and 4). The presence of the Consol Mine is expected to slightly supplement the trend toward greater governmental participation and increasing social and political influence by nonranchers and those with limited (or completely without) familial ties to longtime community elites. The principal effect of the life of mine (Consol Level 2) alternative would be to extend these effects farther into the future, making them more established aspects of the county's social organization.

The potential of additional mining -- and its realization -- will probably encourage area residents and their governmental representatives to pursue issues of planning and coordination. Those who are opposed to coal mining and to further growth in the area -- an acknowledged minority -- will dislike the persistence of the trends toward suburbanization and greater governmental control and planning that were initiated during the 1970s, but most residents of the area will be relieved that the depressed economy of the early 1980s has been revitalized. Those who are pressing for greater emphasis on planning and cooperation between local jurisdictions will appreciate the added impetus provided by the impending population growth and additional development. Project effects on perceptions of and satisfaction with the community are discussed in the county and community sections that follow.

Aside from the changes in material well being that are described in other sections of this chapter (increased employment and income, changes in facilities and services, housing availability), the incremental change in demographic and social characteristics of the community due to the Consol project (at either level) are small enough that effects on the behavioral indicators such as crime and suicide cannot be

forecast with any satisfactory degree of confidence. These indicators are expected to be much more affected by changes in baseline conditions (including national trends) than by the project, although the increased population may be sufficient to cause residents to feel greater concern for personal safety and trust. In general, it is expected that the continuing effect of increased population, greater business and communication ties to the outside, and the commitment to the community as a whole will be to make the study region less unique and more similar to the nation as a whole.

#### 8.3.4 Housing

Under the Consol Level 1 scenario, housing deficits which could be attributed to the direct and indirect population growth from the Consol Level 1 Mine would occur in both Big Horn and Sheridan counties. In Big Horn County, the deficits would last from 1988 to 1998 and peak at 24 housing units. In Sheridan County, housing deficits are forecast during the Consol Level 1 construction period in 1985 and 1987, when the peak deficit would be 373 housing units. Under the Consol Level 2 scenario, an additional deficit of 30 units would occur in Sheridan County in 1998. Additional deficits of 40 to 75 units would also occur in Big Horn County under the Consol Level 2 scenario.

It is highly probable that some of these forecast deficits could be reduced through expansion of local contractors' capacities and through local building by Billings contractors in the case of Big Horn County. However, if local housing suppliers do not expand their capacity to meet local demand, and if they are not assisted by nonlocal builders and/or developers, then the forecast deficits are likely to occur. These deficits could cause housing prices to escalate and reduce both existing residents' and newcomers' choices of housing price and type. In particular, escalating housing prices have been known to adversely affect low and fixed income groups.

Two other factors should be considered when evaluating the capability of local builders and developers to meet housing demand stimulated by energy development. First, even when local suppliers have the capacity to meet housing needs, they can still have trouble obtaining construction financing from private lending institutions that perceive additional risk in lending to energy boom areas. Although this type of problem is not currently affecting study region builders, it could become more important if national housing demand increases and lending institutions have more abundant, less risky opportunities to make construction loans in other areas.

Second, even when financing is available to support local builders and developers, lead-time is necessary to develop housing in periods of escalating demand. Although local bankers and government agencies have had enough experience with housing development to assure prompt responses to new housing plans, builders and developers must have adequate market information and confidence in housing demand projections if they are to anticipate demand in years when it is forecast to increase rapidly. More specific discussion of the effect of the project on housing demand and availability is provided at the county and sub-county level.

#### 8.3.5 Facilities and Services

Because no facilities or services are provided on the regional level, facilities/services impacts are presented below under jurisdictional headings.

#### 8.3.6 Fiscal

The revenues that would accrue to the state of Montana and the royalties that would accrue to the federal government under the Consol scenario were described in Section 4.3.6. Other fiscal impact forecasts for counties, cities, and jurisdictions are presented below.

### 8.3.7 Transportation

Transportation impacts from the Consol Mine would be greatest during the period 1990 to 2007, when production peaks at 8-10 mmt/y and the work force reaches 602 workers for Level 1 development and 938 for Level 2. During construction of the mine, impacts due to additional rail traffic would be insignificant while those associated with increased road traffic would be minimal.

#### 8.3.7.1 Rail

Unit train shipments from the Consol Mine would reach a peak of 15 trains per week in 1990, under Consol Level 1, and of 19 trains per week in 1996, under Consol Level 2. This would be equivalent to increases of about 20 and 25 percent, respectively, over present (and baseline forecast) levels of traffic on the BN's Huntley to Sheridan line, or of about 40 and 50 percent, respectively, on BN's Sheridan to Clearmont line, if the Consol coal is routed south. In neither case would the adverse impacts be severe. For example, grade crossing delay times would increase eight to twenty minutes over a twenty-four-hour period, depending upon location. As indicated by the recent study conducted by the city, grade crossing delays are a local concern (Sanders, personal communication, March 1983).

#### 8.3.7.2 Road

The principal effect of the Consol Mine on the road network would be an increase in mine worker commuter traffic -- primarily between the mine and Sheridan. Forecasts of the consequent traffic increase and related impacts for Level 1 and Level 2 scenarios will be provided by the Montana Department of Highways.

In the absence of a road from Lodge Grass to the Decker area, employment of persons living on the Crow Reservation would be relatively low (about 48 workers at Level 2 peak) due to the long commuting distance from most reservation communities to the mine. Under these conditions, most commuting would be primarily confined to I-90 and Wyoming Highway 338 (Ranchester-Acme-Decker). The Northern Cheyenne Reservation residents who would be employed at the mine (about 18 at Level 2 peak) would commute primarily from the reservation along FAS 314 (Busby-Kirby-Decker). The distance of approximately 45 miles from Busby, much of it narrow and poorly surfaced road, would be a disincentive for Northern Cheyenne and non-Indians from the area to seek work at the Consol project. Improvements to FAS 314 now funded by the Coal Board and BIA would be expected to have a positive effect on employment. The forecast employment from the reservation area would increase average daily traffic (ADT) along FAS 314 by an estimated 18 vehicles in 2000 -- an increase of about 12 percent over baseline forecast levels. Such an increase would not be significant.

### 8.3.8 Outdoor Recreation

#### 8.3.8.1 Consol Level 1

Under this scenario, forecast demand for each type of outdoor recreation activity in Sheridan County would be expected to increase over baseline forecasts by 9 percent in 1990 and would decrease to 5 percent in 2000. No difference would be evident in 2010 and 2015 due to the end of Consol Level 1 in 1998. In Big Horn County, a 1 percent increase over baseline would be expected in 1990 with no differences between baseline and with-project conditions for years 2000 and 2010 (see tables 4.3.8-1 and 4.3.8-2). The use effects that could or are likely to occur from the temporary increase in recreation demand due to Consol 1 would be limited to those generally preferred sites that are (1) along major thoroughfares and easily accessible, (2) close to the recreationists home, or (3) that provide developed facilities, or particularly



popular activities, e.g. camping, fishing. As discussed in Section 4.3.8, crowding and environmental degradation are already evident in particular areas and management techniques are already being used to redirect recreationists to other less popular areas. However, the capacity of recreation resources in the region is extensive and would not be exceeded if recreationists evenly distributed themselves among the available areas.

#### 8.3.8.2 Consol Level 2

As with Consol Level 1 scenario, the popularity and clustering of activities at specific sites would undoubtedly have some increased crowding and degradation effects. However, these problems (which currently exist at some sites) are already being addressed by resource managers as discussed in Section 4.3.8. In Sheridan County, with-project recreation day forecasts would be 9 percent, 14 percent, and 13 percent above baseline for the years 1990, 2000, and 2010, respectively. By the year 2015, Consol Level 2 recreation days would be 6 percent above the baseline level. In the year 2000 when the with-project forecast is highest (at 14 percent above baseline) the most popular recreational activity would be camping with 239.9 thousand recreation visitor days (RVDs) per year. The second and third most popular activities would be fishing and picnicking with 200.0 and 197.7 thousand RVDs, respectively. The least popular activity would be river/floating with only 13 thousand RVDs in the year 2000. With-project recreation day forecasts for Big Horn County would be only 1 percent above baseline for each of the same years (see tables 4.3.8-1 and 4.3.8-2), with fishing being the most popular activity at 10.8 thousand RVDs per year in 1990.

#### 8.3.9 Land Use

##### 8.3.9.1 On-site Impacts

The Consol levels 1 and 2 mining projects would cause direct impacts to the 1,905-acre permit area by removing these lands from their current agricultural production (1,720, 168, and 16 acres in grassland, improved pasture, and irrigated hayland, respectively). The irrigated hayland is presently sustained by a creek that runs over the land included in the permit area. In the first mining phase (Consol 1), approximately 687 acres would be undisturbed, while the remainder would be periodically reclaimed over an eighteen-year period. Reclaimed land would approximate previous agricultural uses with 1,677 acres in grassland, 214 acres in improved pasture, and 14 acres in irrigated hayland (Watts and Ingebrightsen 1983).

Secondary impacts in the study area resulting from population and employment growth attributable to the Consol project area described below.

##### 8.3.9.2 Big Horn County

The effects of the Consol Levels 1 and 2 scenarios were presented in Table 4.3.9.2-1 for urban residential, rural residential, and commercial land uses. By 1995, urban residential land requirements under the scenario would exceed currently designated residential acreage. However, the impacts in any one year would be less than 5 percent above baseline. The incremental acreage needs for rural residential land under the Consol Level 1 scenario would peak in 1995 at 25 acres. For Consol Level 2 the peak incremental demand would occur in the year 2000 at 40 acres. Maximum incremental commercial needs are forecast at 3 acres for each scenario in the year 2010.

#### 8.3.9.3 Sheridan County

With-project urban residential impacts would be substantial for both the Consol levels 1 and 2 scenarios. However, the incremental needs could nearly be met by existing residential acreages. Consol Level 1 creates needs that rise sharply to a maximum of 213 acres in 1998, while Consol Level 2's needs peak of 341 acres in the year 2010, at 14 percent above baseline (see Table 4.3.9.3-1). With these increases, the current inventory of urban residential land would be expected to accommodate the growth from Consol Level 1 through the end of the study period and from Consol Level 2 through 2005. Consol Level 2's urban land needs in 2010 would be 4 percent above the current inventory of such land.

Rural residential peak land use requirements due to the project for Consol levels 1 and 2 would be 156 acres and 254 acres, respectively. Commercial acreage forecasts show a maximum of 16 additional acres due to Consol Level 1 in 1990. Incremental requirements for Consol Level 2 are greatest in the year 2005 at 18 acres.

### 8.4 Big Horn County and Communities

#### 8.4.1 Introduction

This section presents the Consol Mine impact forecasts for Big Horn County and its nonreservation sub-county areas. Section 8.4.2 presents the impact forecasts for the county. Section 8.4.3 presents the impact forecasts for Hardin and the Hardin area. Section 8.4.4 presents the forecasts for the Decker/Spring Creek area. Subsequent sections discuss the impact forecasts for the Crow and Northern Cheyenne Indian reservations. The non-Indian residents of Big Horn County, including those of the Crow and Northern Cheyenne reservations, are considered as part of the county-wide population and economy forecasts presented in Section 8.4.2.1.

#### 8.4.2 Big Horn County

##### 8.4.2.1 Population and Economy

As shown in Table 8.4.2.1-1, the Consol Level 1 Mine's population effects in Big Horn County would begin in 1985 and end by 2010. During the 1985-1987 construction period, the population effects are forecast to reach a maximum of 37 people. During the operations period, which would begin in 1986, the population effects are forecast to reach about 131 people by 1989 and then increase slowly to 137 people by 1995 when the project would account for 1 percent of county population, before decreasing to 41 people in 2000. After 2000, the population effects are forecast to disappear or be slightly negative. As shown in Table 8.4.2.1-2, the Consol Level 2 Mine's population impacts would be identical to Consol Level 1 through 1995, but then increase to about 210 people between 2000 and 2010 (about 1.4 percent of total county population) before declining to 100 people in 2015.

As shown in Table 8.4.2.1-3, the total employment effect under the Consol Level 1 scenario during the construction period would be 1 worker in 1985, 85 workers in 1986, and 169 workers in 1987 (3.6 percent of total county employment), when operations of the mine would commence. Total employment effects during the operations period are forecast to remain constant at about 136 workers (or about 2.6 percent of total county employment) through 1995 and then decline to 1 worker through 2015. As shown in the table, the largest employment increases are forecast to occur in the mining and construction sectors, which in turn would stimulate employment effects in the other sectors. It should be noted that because most of the new Big Horn County jobs created by Consol Level 1 are forecast to be held by current Big Horn County residents, the employment impacts discussed here slightly exceed the population impacts discussed above. As



Table 8.4.2.1 - 1  
Consol Level 1 Scenario Impacts  
Population  
Big Horn County

Year	Total Population	Births	Deaths	Employment- Related Migration	Non-employment Related Migration	Total Change
1980	0	0	0	0	0	0
1981	0	0	0	0	0	0
1982	0	0	0	0	0	0
1983	0	0	0	0	0	0
1984	0	0	0	0	0	0
1985	0	0	0	0	0	0
1986	6	0	0	6	0	6
1987	37	0	0	30	0	30
1988	105	0	0	68	0	68
1989	131	2	0	23	0	25
1990	131	2	0	-2	0	0
1991	133	2	0	0	0	2
1992	134	2	0	-1	0	1
1993	135	2	0	0	0	1
1994	136	2	0	0	0	2
1995	137	2	0	0	0	2
2000	41	0	0	-32	0	-33
2005	0	-1	0	0	0	-1
2010	0	0	0	0	0	0
2015	0	0	0	0	0	0

Source: Mountain West Research - North, Inc., December, 1982

Notes: Details may not sum due to rounding.

All values except total population represent annual changes.

Table 8.4.2.1 - 2  
 Consol Level 2 Scenario Impacts  
 Population  
 Big Horn County

Year	Total Population	Births	Deaths	Employment- Related Migration	Non-employment Related Migration	Total Change
1980	0	0	0	0	0	0
1981	0	0	0	0	0	0
1982	0	0	0	0	0	0
1983	0	0	0	0	0	0
1984	0	0	0	0	0	0
1985	0	0	0	0	0	0
1986	6	0	0	6	0	6
1987	37	0	0	30	0	30
1988	105	0	0	68	0	68
1989	131	2	0	23	0	25
1990	131	2	0	-2	0	0
1991	133	2	0	0	0	2
1992	134	2	0	-1	0	0
1993	135	2	0	0	0	2
1994	136	2	0	0	0	2
1995	137	2	0	0	0	2
2000	211	3	0	-27	0	-24
2005	214	2	1	0	0	0
2010	212	2	1	0	0	1
2015	100	1	1	-56	0	56

Source: mountain West Research - North, Inc., December, 1982

Notes: Details may not sum due to rounding.

All values except total population represent annual changes.

Table 8.4.2.1 - 3  
 Consol Level 1 Scenario Impacts  
 Total Employment by Sector  
 Big Horn County

	As Proprietors	As Labor	Manu facturing	Con struction	Manu facturing	TCPU	Trade	FIRE	Ser vices	Gov ernment	Other +com.	Total
1980	0	0	0	0	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0	0	0	0	0
1984	0	0	0	0	0	0	0	0	0	0	0	0
1985	0	0	0	0	0	0	0	0	0	0	0	1
1986	0	0	23	23	1	2	12	2	9	11	0	82
1987	0	0	52	41	2	4	23	4	18	22	0	186
1988	0	0	63	4	1	2	16	3	14	16	0	122
1989	0	0	71	4	1	3	18	3	16	18	0	136
1990	0	0	71	4	1	3	18	3	16	17	0	136
1991	0	0	71	4	1	3	18	3	16	18	0	136
1992	0	0	71	4	1	3	18	3	16	18	0	136
1993	0	0	71	4	1	3	18	3	16	18	0	136
1994	0	0	71	4	1	3	18	3	16	18	0	137
1995	0	0	71	4	1	3	18	3	16	18	0	137
2000	0	0	0	0	0	0	0	0	0	0	0	1
2005	0	0	0	0	0	0	0	0	0	0	0	1
2010	0	0	0	0	0	0	0	0	0	0	0	1
2015	0	0	0	0	0	0	0	0	0	0	0	1

Source: Mountain West Research - North, Inc., December, 1982

Note Details may not sum due to rounding.

shown in Table 8.4.2.1-4, the Consol Level 2 employment effects are forecast to be identical to those under the Consol 1 scenario through 1995, but then to increase to approximately 216 workers through 2010 when the project would account for 3.3 percent of total county employment. After 2010, employment effects would decline to 115 workers in 2015.

As shown in tables 8.4.2.1-5 and 8.4.2.1-6, the employment effects noted above would be about evenly divided between basic and nonbasic jobs in all of the forecast years for both Consol Level 1 and Consol Level 2.

Table 8.4.2.1-7 presents the income effects that are forecast to occur under the Consol Level 1 scenario. As shown, the total personal income that would accrue to Big Horn County residents as a result of the Consol Level 1 Mine would peak at \$4.1 million per year during the construction period and then stabilize at about \$3.4 million per year during the operations period. The project's effect on per capita personal income in 1990 would be to raise it from \$6,325 (baseline) to \$6,513, a difference of \$188. In 2000, the difference between Consol Level 1 scenario and baseline per capita income is forecast to be -\$16. In 2010, it is forecast to be \$3. As shown in Table 8.4.2.1-8, the Consol Level 2 Mine would raise total personal income in Big Horn County by \$5.4 million per year between the years 2000 and 2010. After 2010, the total personal income effect is forecast to decrease, reaching \$3.0 million by 2015. The Consol Level 2 Mine's effect on per capita income would also be identical to that of the Consol Level 1 Mine in 1990, but would raise per capita income by \$263 in 2005 and by \$240 in 2010, when per capita income under the Consol Level 2 scenario is forecast to be \$7,013.

#### Commercial opportunities

As shown in tables 8.4.2.1-9 and 8.4.2.1-10, the population and income growth due to the Consol levels 1 and 2 mines would not be sufficient to increase the forecast of commercial opportunities in Big Horn County, leaving commercial opportunities unchanged from baseline levels.

#### 8.4.2.2 Social Life and Cultural Diversity

In Big Horn County as a whole, the incremental effects of the Consol Mine (over baseline changes) at either level would be minimal. Most of the impacts will be concentrated in the Decker-Sheridan area, with the major county-wide consequences being a slight change in economic structure (primarily an exaggeration of existing characteristics) and increased property tax revenue flows of the county. Since the great majority of the workers at the mine are expected to reside in Sheridan County, the project will have only marginal effect on the income structure, the population size, the demographic characteristics, or the demands or responsibilities of the county government in Big Horn County. If further mining enables the county to utilize its revenues or to obtain coal board funds to improve facilities or service in the Decker area, the proposed mine could have a beneficial effect on county integration and coordination. If it does not, the residents of the Decker area may withdraw more completely from participation and confidence in County government (see Section 8.4.4.3 for further discussion.)

#### 8.4.2.3 Housing

As shown in Table 8.4.2.3-1, housing deficits under the Consol Level 1 scenario in Big Horn County are forecast to occur between 1988 and 1998 and peak at sixty-two housing units. However, a large portion of this deficit is forecast to occur anyway under the baseline scenario. The housing deficits which can be attributed to the Consol Level 1 Mine occur in the same time period noted above, but peak at 24 units.

Table 8.4.2.1 - 4  
 Consol Level 2 Scenario Impacts  
 Total Employment by Sector  
 Big Horn County

Year	As Proprietors	As Labor	Minings	Con struction	Manu facturing	TCPU	Trade	FIRE	Ser vices	Gov ernment	Other +com.	Total
1980	0	0	0	0	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0	0	0	0	0
1984	0	0	0	0	0	0	0	0	0	0	0	0
1985	0	0	0	0	0	0	0	0	0	0	0	1
1986	0	0	23	23	1	2	12	2	9	11	0	85
1987	0	0	52	41	2	4	23	4	18	22	0	169
1988	0	0	63	4	1	2	16	3	14	16	0	122
1989	0	0	71	4	1	3	18	3	16	18	0	136
1990	0	0	71	4	1	3	18	3	16	17	0	136
1991	0	0	71	4	1	3	18	3	16	18	0	136
1992	0	0	71	4	1	3	18	3	16	18	0	136
1993	0	0	71	4	1	3	18	3	16	18	0	136
1994	0	0	71	4	1	3	18	3	16	18	0	137
1995	0	0	71	4	1	3	18	3	16	18	0	137
2000	0	0	111	7	2	4	29	5	25	28	0	214
2005	0	0	110	6	2	5	27	5	25	28	0	215
2010	0	0	110	7	2	4	28	5	25	27	0	218
2015	0	0	59	3	1	2	15	2	14	14	0	118

Source: Mountain West Research - North, Inc., December, 1982

Note: Details may not sum due to rounding.



Table 8.4.2.1 - 5  
 Consol Level 1 Scenario Impacts  
 Employment by Type  
 Big Horn County

Year	Total	Non Basic	Basic Total	Non Project	Indirect Basic	Basic Project O&M	Project Construc- tion-Perm	Project Construc- tion-NLoc.
1980	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0
1984	0	0	0	0	0	0	0	0
1985	1	1	0	0	0	0	0	0
1986	85	40	44	0	0	23	17	3
1987	169	81	88	0	0	52	28	5
1988	122	58	64	0	0	63	0	0
1989	136	65	71	0	0	71	0	0
1990	136	65	71	0	0	71	0	0
1991	136	65	71	0	0	71	0	0
1992	136	65	71	0	0	71	0	0
1993	136	65	71	0	0	71	0	0
1994	137	65	71	0	0	71	0	0
1995	137	66	71	0	0	71	0	0
2000	1	1	0	0	0	0	0	0
2005	1	1	0	0	0	0	0	0
2010	1	1	0	0	0	0	0	0
2015	1	1	0	0	0	0	0	0

Source: Mountain West Research - North, Inc., December, 1982

Notes: Details may not sum due to rounding.

"Basic project O & M" and "Indirect Basic" represent direct and indirect basic coal mining employment, respectively. No mines are assumed to operate in 2015.

Table 8.4.2.1 - 6  
 Consol Level 2 Scenario Impacts  
 Employment by Type  
 Big Horn County

Year	Total	Non Basic	Basic Total	Non Project	Indirect Basic	Basic Project O&M	Project Construc- tion-Perm	Project Construc- tion-NLoc.
1980	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0
1984	0	0	0	0	0	0	0	0
1985	1	1	0	0	0	0	0	0
1986	85	40	44	0	0	23	17	3
1987	169	81	88	0	0	52	28	6
1988	122	58	64	0	0	63	0	0
1989	136	65	71	0	0	71	0	0
1990	136	65	71	0	0	71	0	0
1991	136	65	71	0	0	71	0	0
1992	136	65	71	0	0	71	0	0
1993	136	65	71	0	0	71	0	0
1994	137	65	71	0	0	71	0	0
1995	137	66	71	0	0	71	0	0
2000	214	103	111	0	0	111	0	0
2005	216	104	111	0	0	111	0	0
2010	216	104	110	0	0	110	0	0
2015	115	56	59	0	0	59	0	0

Source: Mountain West Research - North, Inc., December, 1982

Notes: Details may not sum due to rounding.

"Basic project O & M" and "Indirect Basic" represent direct and indirect basic coal mining employment, respectively. No mines are assumed to operate in 2015.

Table 8.4.2.1 - 7  
 Consol Level 1 Scenario Impacts  
 Personal Income  
 Big Horn County  
 (Thousands of 1980 Dollars)

Year	Total Labor Income	FICA Payments	Non-labor Income	Residency Adjustment	Total Personal Income	Personal Income Per Capita (1980 \$)
1980	0	0	0	0	0	0
1981	0	0	0	0	0	0
1982	0	0	0	0	0	0
1983	0	0	0	0	0	0
1984	0	0	0	0	0	0
1985	34	2	2	0	34	NC
1986	1951	152	227	0	2026	NC
1987	3915	305	460	0	4070	NC
1988	2933	228	361	0	3065	NC
1989	3265	254	405	0	3416	NC
1990	3257	253	408	0	3412	188
1991	3258	254	412	0	3416	NC
1992	3259	254	415	0	3420	NC
1993	3262	254	418	0	3426	NC
1994	3263	254	422	0	3431	NC
1995	3266	254	425	0	3437	NC
2000	2	0	37	0	39	-16
2005	17	1	34	0	50	NC
2010	19	1	38	0	56	3
2015	19	1	39	0	57	-26

Source: Mountain West Research - North, Inc., December, 1982

Notes: Details may not sum due to rounding.

The personal and per capita income figures do not include Crow dividends from royalties and a possible Crow severance tax

NC means not calculated.

Table 8.4.2.1 - 8  
 Consol Level 2 Scenario Impacts  
 Personal Income  
 Big Horn County  
 (Thousands of 1980 Dollars)

Year	Total Labor Income	FICA Payments Payments	Non-labor Income	Residency Adjustment	Total Personal Income	Personal Income Per Capita (1980 \$)
1980	0	0	0	0	0	0
1981	0	0	0	0	0	0
1982	0	0	0	0	0	0
1983	0	0	0	0	0	0
1984	0	0	0	0	0	0
1985	34	2	2	0	34	NC
1986	1951	152	227	0	2026	NC
1987	3915	305	460	0	4070	NC
1988	2933	228	361	0	3065	NC
1989	3265	254	405	0	3416	NC
1990	3257	253	408	0	3412	188
1991	3258	254	412	0	3416	NC
1992	3259	254	415	0	3420	NC
1993	3262	254	418	0	3426	NC
1994	3263	254	422	0	3431	NC
1995	3266	254	425	0	3437	NC
2000	5108	398	678	0	5387	263
2005	5135	327	699	0	5434	NC
2010	5152	400	728	0	5480	240
2015	2624	204	525	0	3045	102

Source: Mountain West Research - North, Inc., December, 1982  
 OK.

Notes: Details may not sum due to rounding.

The personal and per capita income figures do not include Crow dividends from royalties and a possible Crow severance tax  
 NC means not calculated.

TABLE 8.4.2.1-9  
Commercial Opportunities  
Consol Level 1 Scenario  
Big Horn County, Montana  
1990

Type of Commercial Opportunity	With Project	Baseline	Impact
<u>Retail</u>			
Gasoline Service Station	22	22	0
Eating and Drinking Place	31	31	0
Grocery and Other Food Store	10	10	0
Motor Vehicle Dealers and Auto Supply Store	9	9	0
Clothing and Shoe Store	8	8	0
Lumber, Hardware, and Mobile Home Dealers	10	10	0
Furniture and Household Appliance Stores	7	7	0
Department Stores	2	2	0
Drug, Variety, General Merchandise Stores	12	12	0
Sporting Goods, Hobby, Flowers, Gift, Sewing Stores	11	11	0
Liquor Store	5	5	0
Jewelry Store	4	4	0
Book Store and Newstands	1	1	0
<u>Service</u>			
Hotels, Motels, Commercial Campgrounds	25	25	0
Beauty and Barber Shops	14	14	0
Auto Repair Shops	14	14	0
Legal, Accounting, Advertising, Data Processing	25	25	0
Engineering, Architecture, Surveying	6	6	0
Equipment and Auto Renting and Leasing	4	4	0
Laundries	5	5	0
Appliance, Furniture, and Shoe Repair	6	6	0
Movie Theatres and Bowling Alleys	4	4	0
Janitorial Services	6	6	0
Photographic Studios	3	3	0
Car Washes	2	2	0
Funeral Services	1	1	0
<u>Finance and Real Estate</u>			
Real Estate Office	12	12	0
Insurance Agencies	6	6	0
Personal Credit Institution	3	3	0
Commercial Bank	3	3	0
Savings and Loan Association	0	0	0
<b>TOTAL</b>	<b>271</b>	<b>271</b>	<b>0</b>

Source: Mountain West Research-North, Inc., 1982.

Note: Forecast population for 1990: 13,716



TABLE 8.4.2.1-10

Commercial Opportunities  
 Consol Level 2 Scenario  
 Big Horn County, Montana  
 2000

Type of Commercial Opportunity	With Project	Baseline	Impact
<u>Retail</u>			
Gasoline Service Station	25	25	0
Eating and Drinking Place	34	34	0
Grocery and Other Food Store	12	12	0
Motor Vehicle Dealers and Auto Supply Store	10	10	0
Clothing and Shoe Store	9	9	0
Lumber, Hardware, and Mobile Home Dealers	11	11	0
Furniture and Household Appliance Stores	8	8	0
Department Stores	2	2	0
Drug, Variety, General Merchandise Stores	14	14	0
Sporting Goods, Hobby, Flowers, Gift, Sewing Stores	13	13	0
Liquor Store	5	5	0
Jewelry Store	4	4	0
Book Store and Newstands	1	1	0
<u>Service</u>			
Hotels, Motels, Commercial Campgrounds	27	27	0
Beauty and Barber Shops	15	15	0
Auto Repair Shops	15	15	0
Legal, Accounting, Advertising, Data Processing	28	28	0
Engineering, Architecture, Surveying	7	7	0
Equipment and Auto Renting and Leasing	5	5	0
Laundries	5	5	0
Appliance, Furniture, and Shoe Repair	7	7	0
Movie Theatres and Bowling Alleys	4	4	0
Janitorial Services	6	6	0
Photographic Studios	3	3	0
Car Washes	2	2	0
Funeral Services	1	1	0
<u>Finance and Real Estate</u>			
Real Estate Office	13	13	0
Insurance Agencies	6	6	0
Personal Credit Institution	3	3	0
Commercial Bank	3	3	0
Savings and Loan Association	0	0	0
<b>TOTAL</b>	<b>298</b>	<b>298</b>	<b>0</b>

Source: Mountain West Research-North, Inc., 1982.

Note: Forecast population in 2000: 15,178.

TABLE 8.4.2.3-1

Consol Level 1 Scenario Forecast  
Housing Unit Demand/Supply  
Big Horn County

Year	Total Demand	Incremental Demand Over Previous Year	Local Supply Response (Limit = 40)	Cumulative (Deficit) Surplus	Baseline (Deficit) Surplus	(Deficit) Surplus Attributed to Project
1980	2,601					
1981	2,613	12	12	0	0	0
1982	2,604	-9	0	9	9	0
1983	2,616	12	3	0	0	0
1984	2,630	14	14	0	0	0
1985	2,651	27	27	0	0	0
1986	2,678	27	27	0	0	0
1987	2,712	34	34	0	0	0
1988	2,770	58	40	(18)	0	(18)
1989	2,799	29	40	(7)	0	(7)
1990	2,891	92	40	(59)	(51)	(7)
1991	2,910	19	40	(38)	(19)	(19)
1992	2,974	64	40	(62)	(42)	(20)
1993	3,003	29	40	(51)	(30)	(21)
1994	3,030	27	40	(38)	(16)	(22)
1995	3,071	41	40	(39)	(15)	(24)
1996	3,094	23	40	(22)	(4)	(18)
1997	3,120	26	40	(8)	0	(8)
1998	3,158	38	40	(6)	(2)	(4)
1999	3,178	20	40	0	0	0
2000	3,204	26	26	0	0	0
2005	3,319	115 for 5 years	115 for 5 years	0	0	0
2010	3,478	159 for 5 years	159 for 5 years	0	0	0
2015	3,662	184 for 5 years	184 for 5 years	0	0	0

Source: Mountain West Research-North, Inc., 1982.

Note: Includes Big Horn County non-Indian population and Crow population in Hardin.

As shown in Table 8.4.2.3-2, housing deficits under the Consol Level 2 scenario in Big Horn County are forecast to occur between 1988 and 2000 and peak at seventy-seven housing units. The housing deficits which can be attributed to the Consol Level 2 Mine occur in the same time period noted above, and peak at 75 units. As shown, the deficits attributable to the Consol 2 Mine outnumber baseline deficits. More detail on the Consol Level 1 and 2 mines' impact on housing demand in Big Horn subcounty areas is provided in subsequent sections. The actual housing demand forecasts by type of unit for each area under the two scenarios are summarized in tables in Appendix B.

These forecasts for Consol Level 1 and 2 do not take into account the effect of increased income on housing demand, which is discussed more fully in Section 2.3.3.

#### 8.4.2.4 Facilities and services

The highest population impacts under Consol Level 1 occur in 1995 with a projected increase of 137 residents over the baseline case (0.9 percent). The increment decreases after 1995 and returns to the baseline projection in 2005. Consequently, no major additional physical requirements are projected (see Appendix C).

The Consol Level 2 Mine is equivalent to the Consol 1 alternative through 1995 but increases production and employment over the next twenty years. Highest population impacts are expected between 2000 and 2010 with increases of 212 (1.4 percent) in 2000 and 2010, with a peak of 216 additional people in 2005. No increases in facility requirements are projected for these years for Big Horn County.

#### 8.4.2.5 Fiscal

The Consol Level 1 Mine contributes to the Big Horn County tax base, but does not lend to increases in population requiring the provision of county services. The mine therefore has a positive effect on the county's fiscal balance (see Table 8.4.2.5-1).

The mine adds approximately \$79 million to the county's assessed valuation each year between 1989 and 1997. This results in a peak cumulative projected surplus of \$32 million in 2000. As the mine phases out and the assessed value in the county drops, and mining related revenues decline. It should be noted that these projections are heavily influenced by the 1982 budget structure in which expenditures substantially exceed revenues. In fact, Big Horn County has a very substantial tax base, given its population and the provision of federally funded services to a large portion of the county population.

The population levels, and therefore the fiscal effects, of the Consol Level 2 alternative are similar to the cumulative scenario (see Section 10.4.2.5 and Appendix C tables).

#### 8.4.2.6 Schools -- Facilities/Services and Fiscal

##### Facilities/services

The projections of personnel and capital facilities requirements in the Consol levels 1 and 2 scenarios are based on student enrollments. Table 4.4.2.6-1 and Appendix O present comparative student enrollments from which the school requirements are derived. For the Consol Level 1, Consol Level 2, and baseline scenarios, student enrollments would be identical in all public school jurisdictions except high school district no. 1 (Hardin) and elementary school districts 17H (Hardin and Crow Agency). For the high school in Hardin and elementary schools in Hardin and Crow Agency, the variation among the Consol

TABLE 8.4.2.3-2

Consol Level 2 Scenario Forecast  
Housing Unit Demand/Supply  
Big Horn County

Year	Total Demand	Incremental Demand Over Previous Year	Local Supply Response (Limit = 40)	Cumulative (Deficit) Surplus	Baseline (Deficit) Surplus	(Deficit) Surplus Attributed to Project
1980	2,601					
1981	2,613	12	12	0	0	0
1982	2,604	-9	0	9	9	0
1983	2,616	12	12	0	0	0
1984	2,630	14	14	0	0	0
1985	2,651	21	21	0	0	0
1986	2,678	27	27	0	0	0
1987	2,712	34	34	0	0	0
1988	2,770	58	40	(18)	0	(18)
1989	2,799	29	40	(7)	0	(7)
1990	2,891	92	40	(59)	(51)	(7)
1991	2,910	19	40	(38)	(19)	(19)
1992	2,974	64	40	(62)	(42)	(20)
1993	3,003	29	40	(51)	(30)	(21)
1994	3,030	27	40	(38)	(16)	(22)
1995	3,071	41	40	(39)	(15)	(24)
1996	3,101	30	40	(29)	(4)	(25)
1997	3,152	51	40	(40)	0	(40)
1998	3,229	77	40	(77)	(2)	(75)
1999	3,246	17	40	(54)	0	(54)
2000	3,276	30	40	(44)	0	(44)
2005	3,389	113 for 5 years	157 for 5 years	0	0	0
2010	3,568	179 for 5 years	179 for 5 years	0	0	0
2015	3,702	134 for 5 years	134 for 5 years	0	0	0

Source: Mountain West Research-North, Inc., 1982.

Note: Includes non-Indian population and Crow Indian population in Hardin.

TABLE 8.4.2.5-1

Consol Level 1 Scenario Fiscal Summary  
Big Horn County  
1982-2015  
(1982 \$000)

Fiscal Summary	1982	1983	1984	1985	1986	1987	1988	1989	1990	1995	2000	2005	2010	2015
Revenues Total	5,483	5,663	5,577	6,234	7,380	8,830	9,681	10,508	10,618	11,178	7,675	5,523	5,616	3,987
Expenditures														
O&M	6,065	6,190	6,249	6,319	6,389	6,469	6,564	6,636	6,773	7,133	7,411	7,768	8,042	8,127
Capital	3,180	381	300	300	300	300	300	386	300	300	300	325	300	300
Debt Payment	970	350	350	350	350	350	350	350	350	350	--	--	--	--
TOTAL	10,604	6,921	6,899	6,969	7,039	7,119	7,214	7,373	7,423	7,783	7,711	8,094	8,342	8,427
Fiscal Balance -- Alternative														
Annual	-1,258	-1,322	-1,322	-735	342	1,711	2,467	3,135	3,195	3,395	-35	-2,571	-2,726	-4,440
Cumulative	-1,258	-2,580	-2,580	-3,315	-2,973	-1,262	1,205	4,340	7,535	24,569	32,406	28,512	NF	NF
Fiscal Balance -- Baseline														
Annual	-1,249	-1,322	-1,322	-747	-265	308	361	455	488	670	-23	-2,573	-2,732	-4,447
Cumulative	-1,249	-2,571	-2,571	-3,318	-3,583	-3,274	-2,913	-2,458	-1,970	1,441	3,805	-94	NF	NF

Source: Briscoe, Maphis, Murray, and Lamont, Inc., Fisplan, 1983.

Notes: Details may not sum due to rounding. NF = not forecast. Because of limitations in the size of the computer model used to project population, it was possible to make annual projections through 2005. Thereafter only the single years 2010 and 2015 were projected. Therefore, it was not possible to compute cumulative fiscal results for years following 2005. The large net deficits shown in this table result from the methodology used (see Section 2.3.4). In actuality, such deficits would not be allowed to occur -- government officials would either find additional sources of revenues and/or reduce expenditures.



Level 1, Consol Level 2, and baseline scenarios for student enrollments is approximately 1 percent for the years 1995 and 2015 projections. For the high school, the baseline, Consol Level 1 and Consol Level 2 student enrollments vary between 450 and 460 students for 1995 and 480 and 470 students for 2015 among the three scenarios. For the elementary schools in Hardin, the student enrollments vary between 970 and 980 students for the mid-term and 1,040 and 1,050 students for the year 2015 projections among the three scenarios. For the elementary school at Crow Agency, the baseline, Consol 1, and Consol student enrollments would be identical for the 1995 projections and vary between 300 and 310 students in 2015.

Based upon the insignificant variation in student enrollments for the three scenarios, the discussion for the baseline scenario (see Section 4.4.2.6) adequately reflects the projections of requirements for personnel and capital facilities for the Consol Level 1 and Consol Level 2 scenarios.

### Fiscal

This section discusses the fiscal conditions of the county school districts for the Consol Mine scenarios. Big Horn County would not receive little population impact from the proposed actions and the change in enrollments for each district are forecast to be minimal or nonexistent. For this reason, the fiscal conditions for the districts in the Consol levels 1 and 2 scenarios would be identical to the conditions for the baseline scenario, except as noted below. (See Section 4.4.2.6.)

A key component of the county school finance conditions is the state school equalization program. As discussed in Section 3.3.2.5, the state school foundation program is the basis for revenue generation for school districts in Montana. Big Horn County has been a net contributor to the state foundation program in the past. It is anticipated that the county would continue to produce surplus funds for the state throughout the major portion of the forecast period. Table 8.4.2.6-1 presents the forecasted net contribution to the state program from both the high school and elementary districts' mandatory levies. As shown, the surplus in foundation money produced by the county is expected to increase from \$1.66 million in 1982 to a maximum of \$7.21 million in 1995. Only after 2010 is the county forecast to be a net recipient from the fund. This change would be caused by a loss of tax base in the county due to closure of several of the existing coal mines. The net increase over baseline in the contribution to the state program is forecast to increase from \$0 in 1982 to a peak of \$3.168 millions in 1995 and then decrease to \$5,000 in 2015.

### 8.4.3 Hardin and Hardin Area

#### 8.4.3.1 Introduction

This section presents the Consol Mine impact forecasts for Hardin and the Hardin area. Section 8.4.3.2 presents the population and economic forecasts for each area. Section 8.4.3.3 discusses social life in Hardin and the Hardin area under the Consol scenarios. The housing impact forecasts are presented in Section 8.4.3.4. Facilities/services and fiscal impact forecasts are presented in sections 8.4.3.5 and 8.4.3.6, respectively.

#### 8.4.3.2 Population and Economy

As shown in Table 8.4.3.2-1, based on the population assumptions described in chapters 2 and 6, the effects of the project on the population in Hardin would be limited to non-Indians and would begin in 1987 at the start of the operations period, remain at about sixty-five people through 1995 and then decline to

Net Contribution to State School Foundation Program  
 Consol Level 1  
 Big Horn County  
 1982-2015  
 (1982 \$000)

Source: Mountain West Research-North, Inc., 1983.

TABLE 8.4.3.2-1  
 Consol 1 Scenario Impact  
 Population  
 Big Horn County Allocation Areas

Year	City of Hardin (non-Indian)	Hardin Area	Decker/Spring Creek Area
1980	0	0	0
1981	0	0	0
1982	0	0	0
1983	0	0	0
1984	0	0	0
1985	0	0	0
1986	0	0	6
1987	12	4	15
1988	52	17	14
1989	64	23	18
1990	63	23	20
1991	65	22	20
1992	64	22	22
1993	64	23	22
1994	65	22	22
1995	65	22	23
1996	56	18	23
1997	52	16	23
1998	45	13	23
1999	28	7	22
2000	8	-2	22
2005	0	0	0
2010	0	0	0
2015	0	0	0

Source: Mountain West Research-North, Inc.,

about eight people by 2000. The population impacts in the Hardin North area would follow a similar pattern, but be limited to about twenty-three people during most of the forecast period.

As shown in Table 8.4.3.2-2, Consol Level 2 scenario's population effects in Hardin and the Hardin North area would be identical to those of the Consol 1 scenario through 1995. However, after 1995, the mine expansion would cause the Consol Level 2 population impact in Hardin to increase to 127 people in 1998 before decreasing to 45 people in 2015. In the Hardin North area, the impact would rise to 41 people in 1998 and then decline to 13 people by 2015.

All operations employment at the Consol Level 1 and 2 mines is expected to be obtained by residents of Sheridan County, the Crow Reservation and the Northern Cheyenne Reservation. The mines are therefore not expected to have any noticeable impact on either non-Indian employment or income in Hardin and the Hardin North area. The project is not forecast to have a noticeable impact on Crow Indian population, employment, or income in Hardin.

#### 8.4.3.3 Social Life and Cultural Diversity

The effects of the Consol Mine (Level 1) on the Hardin area would be minimal and generally of the nature described in sections 4.4.2.2 and 8.4.2.2. Total population effects on Hardin are expected to be approximately 65 persons for Level 1 and 127 persons for Level 2. For facilities/services, as discussed in Section 8.4.2.2, the effects would be due almost entirely to indirect income flows to the city via taxes and commercial activities. The principal differences between the Consol 1 and 2 levels are the phasing and duration of increased activity and population. Any effects from the proposed mine will be subtle compared to the social issues facing Hardin due to baseline conditions. These project related effects are not anticipated to be of a nature that would substantially alter the baseline characteristics in the Hardin area. For this reason, and because they generally result from increased revenue flows, most Hardin residents -- if they notice them at all -- are expected to consider the changes to be positive.

#### 8.4.3.4 Housing

As shown in Table 8.4.3.4-1, the incremental housing demand created by the Consol Level 1 Mine in Hardin would begin in 1987 at six additional units and build to thirty-two additional units in 1994, before dropping to nine additional units in 2000. The housing demand impacts in the Hardin area would be present in the same years, but be limited to a peak of nine additional units. Under Consol Level 2 conditions, the additional units needed in Hardin would continue through 2015 and peak at fifty-six additional units in 1999 (see Table 8.4.3.4-2). Similarly, the additional units needed in the Hardin area would also continue through 2015 and peak at fifteen units in 1998. As noted in Section 8.3.4, because of aggregate county demand, local builders probably would not be able to meet this additional housing demand at their current capacities. However, it is expected that expansion of local capacities or participation by regional builders would result if excess demand developed.

#### 8.4.3.5 Facilities/Services

##### Consol Level 1

The impact on Hardin facilities/services for the Consol Level 1 scenario would be minimal, since the population impact peaks at sixty-five additional people in 1995 and essentially drops back to baseline levels by 2000. No significant impacts on public services and facilities are anticipated. (See Appendix C.)

TABLE 8.4.3.2-2  
 Consol 2 Scenario Impact  
 Population  
 Big Horn County Allocation Areas

Year	City of Hardin (non-Indian)	Hardin Area	Decker/Spring Creek Area
1980	0	0	0
1981	0	0	0
1982	0	0	0
1983	0	0	0
1984	0	0	0
1985	0	0	0
1986	0	0	0
1987	12	4	6
1988	52	17	15
1989	64	23	14
1990	63	23	18
1991	65	22	20
1992	64	22	20
1993	64	23	22
1994	65	22	22
1995	65	22	22
1996	66	23	23
1997	92	30	33
1998	127	41	53
1999	112	35	42
2000	96	28	43
2005	97	28	44
2010	97	28	44
2015	45	13	20

Source: Mountain West Research-North, Inc.,



TABLE 8.4.3.4-1

Consol Level 1 Scenario  
Housing Demand Impacts  
Big Horn County Allocation Areas  
(Housing Units)

Year	City of Hardin (non-Indian)	Hardin Area	Decker/Spring Creek Area
1980	0	0	0
1981	0	0	0
1982	0	0	0
1983	0	0	0
1984	0	0	0
1985	0	0	0
1986	0	0	3
1987	6	2	6
1988	24	6	5
1989	30	9	8
1990	30	8	9
1991	31	8	9
1992	31	8	10
1993	31	8	11
1994	32	9	11
1995	32	9	11
1996	29	7	11
1997	27	7	11
1998	25	7	11
1999	15	4	11
2000	4	0	10
2005	0	0	0
2010	0	0	0
2015	0	0	0

Source: Mountain West Research-North, Inc. 1982.

TABLE 8.4.3.4-2

Consol Level 2 Scenario  
Housing Demand Impacts  
Big Horn County Allocation Areas  
(Housing Units)

Year	City of Hardin (non-Indian)	Hardin Area	Decker/Spring Creek Area
1980	0	0	0
1981	0	0	0
1982	0	0	0
1983	0	0	0
1984	0	0	0
1985	0	0	0
1986	0	0	3
1987	6	2	6
1988	24	6	5
1989	30	9	8
1990	30	8	9
1991	31	8	9
1992	31	6	10
1993	31	9	11
1994	32	9	11
1995	32	9	11
1996	33	9	11
1997	45	12	15
1998	52	15	25
1999	56	14	20
2000	50	11	20
2005	50	11	20
2010	50	11	20
2015	23	5	9

Source: Mountain West Research-North, Inc. 1982.

#### Consol Level 2

The maximum population increment associated with the Consol Level 2 scenario is a 1.6 percent increase in 2015, representing seventy-two additional residents. The rate and amount of growth projected for this scenario would not create effects on the town's facilities/services that differ significantly from the baseline case.

#### 8.4.3.6 Fiscal

#### Consol Level 1

The city of Hardin is not benefited by the mine's assessed value. However, population impacts on the town are so small that the effect of the project would be indistinguishable for the baseline case. (See Table 8.4.3.6-1.)

The minimal increases in the town's population due to the mine lead to projected fiscal balances that are almost identical to the baseline scenario.

#### Consol Level 2

For the Consol level 2 alternative, the population levels, and therefore the fiscal effects, would be similar to the cumulative scenario (see Section 10.4.3.6 and Appendix C).

#### 8.4.4 Decker Area

##### 8.4.4.1 Introduction

This section presents the Consol Mine impact forecasts for the Decker area. Section 8.4.4.2 presents the population and economic impact forecasts for the area. Section 8.4.4.3 discusses social life under the Consol Mine scenario in the Decker area. The housing impact forecasts are presented in Section 8.4.4.4. Facilities/services and fiscal impact forecasts for the Decker area have been covered within the county level discussion of school districts (see Section 8.4.2.6) and are not discussed here.

##### 8.4.4.2 Population and Economy

As shown in Table 8.4.3.2-1, population effects in the Decker/Spring Creek area would reach a peak of fifteen people in 1986 during the Consol Level 1 construction period and then remain between twenty and twenty-three people for the duration of the operations period. As shown in Table 8.4.3.2-2, the population effect under the Consol Level 2 scenario would increase from twenty-three people in 1995 to fifty-three people in 1998 when the mine would be expanded and then fall to twenty people as mine operations are scaled down.

In 1990, when operations employment at the Consol Level 1 Mine would have reached its peak, Decker area employment would be 272 workers, 70 job-holders above the baseline level of 202 workers. In this case, it is important to note that employment effects would exceed population impacts because most of the workers would be local. The Decker area's total labor income in 1990 would be \$3.51 million, about \$1.5 million above the baseline labor income of \$2.93 million. (Mountain West Research-North, Inc., 1982.)

TABLE 8.4.3.6-1

Consol Level 1 Scenario Fiscal Summary  
City of Hardin  
1982-2015  
(1982 \$000)

Fiscal Summary	1982	1983	1984	1985	1986	1987	1988	1989	1990	1995	2000	2005	2010	2015
Revenues Total	878	920	924	932	939	947	962	970	997	1,046	1,066	1,114	1,169	1,203
Expenditures														
O&M	1,279	1,311	1,318	1,329	1,340	1,352	1,375	1,387	1,428	1,502	1,532	1,605	1,679	1,702
Capital	10	41	32	10	10	10	10	41	10	10	29	21	10	10
Debt Payment	49	49	49	49	49	49	49	40	40					
TOTAL	1,338	1,402	1,398	1,388	1,399	1,411	1,434	1,469	1,478	1,512	1,561	1,626	1,689	1,712
Fiscal Balance -- Alternative														
Annual	-482	-474	-474	-456	-460	-464	-472	-499	-481	-466	-495	-512	-519	-509
Cumulative	-482	-956	-956	-1,412	-1,872	-2,336	-2,808	-3,307	-3,788	-6,201	-8,605	-11,063	NF	NF
Fiscal Balance -- Baseline														
Annual	-475	-470	-470	-456	-460	-463	-465	-491	-472	-457	-496	-515	-523	-512
Cumulative	-475	-945	-945	-1,402	-1,862	-2,324	-2,789	-3,280	-3,752	-6,125	-8,512	-10,930	NF	NF

Source: Briscoe, Maphis, Murray, and Lamont, Inc., B.Y. Analytics, 1983.

Notes: Details may not sum due to rounding. NF = not forecast. Because of limitations in the size of the computer model used to project population, it was possible to make annual projections through 2005. Thereafter only the single years 2010 and 2015 were projected. Therefore, it was not possible to compute cumulative fiscal results for years following 2005.

In the year 2000, when operations employment at the Consol Level 2 Mine would have reached its peak, Decker area employment would be 312 workers, 112 workers above the baseline level of 200 workers. Again, it is important to note that employment effects would exceed population effects because most of the workers would be local. The Decker area's total labor income in 2000 would be \$5.24 million, about \$2.32 million above the baseline labor income of \$2.92 million in 2000. (Mountain West Research-North, Inc., 1982.)

#### 8.4.4.3 Social Life and Cultural Diversity

##### Background

As indicated in the baseline discussion, the population forecasts made for the rural areas of southern Big Horn County are tenuous, given their vulnerability to the decisions of individual developers or entrepreneurs. The very small population base of the Decker area makes minor changes in absolute population size of major importance to the social impact discussion. The population projections presented in the previous section indicate that the Decker area would experience a slight increase after 1986, the magnitude of which would gradually increase to between twenty and thirty persons by the end of the forecast period. (Under the Consol Level 2 scenario, the increase would rise to between fifty-five and sixty persons.) Although employment characteristics of the area -- by place of work -- show substantial changes over baseline forecasts, the Decker area communities are well experienced with this type of nonresident work force and are not likely to be greatly affected by its continuation and increase. The physical presence of the mine and the workers is expected to have more effect than the availability of the jobs or the effect on local economic relationships (from the perspective of area residents).

If a major, planned unit development (such as Spring Creek) or a substantial influx of newcomers into the rural Decker area did occur, the social organization of the existing open ranch communities of this area would be placed under considerable stress and would be likely to undergo considerably accelerated change in social structure and personal relationships.

##### Social organization

The community's recent and prolonged experience with declining population is forecast to be reversed after 1983 (except for 1988) as the population grows to a forecast 223 in 1990 and 257 in 2015 under the Consol 2 scenario. Although the growth is gradual and steady, its effects on the community's social organization will probably remain essentially as suggested in the baseline forecast when additional growth was considered. The major differences in diversity/complexity anticipated with the additional mine (especially with the Consol Level 2 Mine) would be a slight increase in economic diversification, with the possible addition of some limited commercial establishments and increased differentiation of the social structure into increasingly well distinguished groups with differing social and political characteristics. Changes in the stratification system with the construction and operation of the Consol Mine would be similar to those anticipated under baseline conditions, with the exception that mining and miners would acquire an even more prominent and economically important position in the region. In addition to heightening area residents' attention to these activities and maintaining sensitivities to the tensions between mining and ranching at levels somewhat above baseline conditions, some firming of current status criteria into more well-defined and rigid categories could be anticipated if an influx of nonlocal, nonagriculturally linked residents occurs. The process and extent of this change will be influenced by the prevailing expectations (of both longtime residents and newcomers) about future growth and the nature of the community.

Linkages between community residents and the outside are expected to continue to follow the patterns described in the baseline discussion. As under the baseline, these forecast characteristics are subject



to modification should unforeseen changes in residential patterns, regulatory procedures, county governmental leadership, or population characteristics occur.

Since integration in the Decker area communities is currently at a low level, largely due to the important and intense changes that have occurred in the recent past, little further diminution of this aspect of community organization is anticipated. It is possible that the continuation of these types of changes would exert further adverse effects on community, but it appears more likely that the community will remain at its current low level of integration well into the future. The mine might either reduce integration slightly as the visual effects of mining and the nuisances created by greater populations seeking access to rural areas create further alienation among agricultural residents, or it could lead the agricultural residents to develop mechanisms to allow a more vital coexistence between the two lifestyles. Economic integration does not appear likely to undergo significant change during the forecast period. Depending upon how actively the new residents choose to press their political interests, the community could become increasingly politicized, with the formation of two separate but more intensely coordinated groups. To date, there is no indication that this has begun to happen.

#### Perceptions of the community

Since current residents of the Decker area generally appear to be resigned to future, widespread coal development in their area (see Section 4.4.4.3), it is unlikely that their perceptions will be greatly affected by the presence of the Consol Mine. Since most agriculturally based residents of the area have not liked the mining that has already occurred, it is unlikely that they will feel more positive about additional strip mining in their vicinity. However, as noted previously, most area residents have resigned themselves to the inevitability of further coal development and are therefore unlikely to be surprised if such development does occur. Residents of the area are likely to experience continuing contradictory feelings regarding the changes that are occurring in the region. Many will feel positive about some aspects of the continued growth of Sheridan's commercial and service sectors, improved transportation links to the Sheridan area, and greater regional prosperity, but many will be distressed by the increased nuisance levels associated with the presence of strangers and nonresidents and by the diminution of the former strong sense of community identity and cohesion.

The presence of residents employed in the mining sector is likely to increase average per capita income in the area, to provide a larger working-age cohort with elementary school children (which might prolong the vitality of the rural schools), and to increase the area's ability to attract coal board monies for infrastructure improvement. The expected magnitude of population and social changes (for either Consol Level 1 or Consol Level 2) is low enough that its effects on social behaviors will probably be overwhelmed by other factors.

#### 8.4.4.4 Housing

As shown in Table 8.4.3.4-1, the housing demand effects of the Consol Level 1 Mine in the Decker/Spring Creek area would begin in 1985 and end by 2000. The housing demand effects would be no more than eleven additional units in any given year. Under the Consol Level 2 scenario, the effects would be the same through 1996, but would then climb to twenty-five additional units in 1998 and twenty additional units from 1999 through 2010. As noted in Section 7.3.4, because of aggregate demand in the county local builders probably would not be able to meet this additional housing demand at their current capacities.

Under the Consol levels 1 and 2 scenarios, it does not appear that housing demand in the Decker area would be large enough to trigger development of Spring Creek, an approved subdivision described in Section 3.3.4.4. However, if for some reason Spring Creek were developed, it would shift some housing demand away

from other areas toward Spring Creek and increase Consol Levels 1 and 2 scenarios' demand for housing in the Decker/Spring Creek area.

#### 8.4.4.5 Facilities/Services

There are no local jurisdictional units in the Decker/Spring Creek area. Consequently, no discussion of facilities/services is appropriate for this geographic area. Public elementary and secondary schools are discussed at the county level.

#### 8.4.4.6 Fiscal

There are no local jurisdictional units in the Decker/Spring Creek area. Consequently, no discussion of fiscal conditions is appropriate for this geographic area. Public elementary and secondary schools are discussed at the county level.

### 8.5 Crow Reservation and Communities

#### 8.5.1 Introduction

This section discusses the effects of the Consol Level 1 and Level 2 scenarios on the Crow Indian Reservation and its communities. The section is comprised of four subsections, each of which focuses on a particular geographic area of the reservation. Section 8.5.2 presents population, economic, social life and cultural diversity, housing, facilities/services and fiscal impact forecasts for the reservation as a whole. Sections 8.5.3 and 8.5.4 presents the same set of forecasts for the Crow Agency and the northeast area and for Lodge Grass and the southeast area, respectively. Because the Consol Mine is expected to have a less significant impact on the central and west areas, sections 8.5.5 and 8.5.6 discuss the anticipated population and economic impact changes associated with the mine areas, but do not discuss the housing, facilities/services, or fiscal forecasts unless warranted by the magnitude of potential change.

It should be noted that the incidental presence of non-Indians on the reservation due to the increased population in the Decker-Sheridan area and the proximity of the mines and their employment to the reservation may raise the need for tribal response in the areas of law enforcement (trespass, traffic, littering) and fish and wildlife management. These consequences are addressed in the accompanying AITS report (1983).

#### 8.5.2.1 Population and Economy

Because the Consol Level 1 and Level 2 mines would not cause Crow Indian in-migration to the reservation or Hardin, their effects on the Crow population would be limited to employment and income. As shown in Table 8.5.2.1-1, which presents projections for the Crow Indians on the reservation and in Hardin at five-year increments, Crow employment effects under the Consol Level 1 scenario would be 46 workers in both 1990 and 1995. As shown in Table 8.5.2.1-2, the employment impacts of the Consol Level 2 Mine would increase to 73 workers by 2000 and remain at that level through 2010. As shown, these employment impacts would cause reduction in the unemployment rate during the years in which employment impacts occur. In 1990, when the Consol Level 1 Mine would be at full operations employment, the total labor income of Crow Indians in Big Horn County would be \$25.7 million, or about \$1.3 million above the forecast baseline labor income of \$24.4 million in 1990. In 2000, when the Consol Level 2 Mine would be at full operations employment, the Crow Indians' total labor income would be \$33.4 million, or about \$2.0 million above forecast baseline labor income of \$31.4 million in 2000. (Mountain West Research-North, Inc., 1982.)

TABLE 8.5.2.1-1

Consol Level 1 Scenario Forecast  
Crow Indian Population, Labor Force, and Employment  
Crow Reservation and Hardin

Year	Consol Level 1 Scenario and Baseline Scenario				Employment		Unemployment Rate (Percent)	
	Population	Labor Force	Labor Force Participation Rate (Percent)	Consol Level 1 Scenario	Baseline Scenario	Impact	Consol Level 1 Scenario	Baseline Scenario
1986	5,378	2,089	38.8	1,319	1,319	0	36.9	36.9
1985	5,944	2,419	40.7	1,315	1,315	0	45.6	45.6
1990	6,454	2,675	41.4	1,561	1,515	46	41.6	43.4
1995	6,912	2,993	43.3	1,759	1,713	46	41.2	42.8
2000	7,414	3,239	43.7	1,886	1,885	1	41.8	41.8
2005	7,856	3,499	44.5	2,086	2,086	0	40.4	40.4
2010	8,356	3,657	43.8	2,274	2,274	0	37.8	37.8
2015	9,119	3,847	42.1	2,517	2,517	0	34.6	34.6

Source: Mountain West Research-North, Inc., 1982.

TABLE 8.5.2.1-2

Consol Level 2 Scenario Forecast  
Crow Indian Population, Labor Force, and Employment  
Crow Reservation and Hardin

Year	Consol Level 2 Scenario and Baseline Scenario				Employment		Unemployment Rate (Percent)	
	Population	Labor Force	Labor Force Participation Rate (Percent)	Consol Level 2 Scenario	Baseline Scenario	Impact	Consol Level 2 Scenario	Baseline Scenario
1980	5,378	2,089	38.8	1,319	1,319	0	36.9	36.9
1985	5,944	2,419	40.7	1,315	1,315	0	45.6	45.6
1990	6,454	2,675	41.4	1,561	1,515	46	41.6	43.4
1995	6,912	2,993	43.3	1,759	1,713	46	41.2	42.8
2000	7,414	3,239	43.7	1,958	1,885	73	39.5	41.8
2005	7,856	3,499	44.5	2,159	2,086	73	38.3	40.4
2010	8,358	3,657	43.8	2,347	2,274	73	35.8	37.8
2015	9,119	3,847	42.1	2,632	2,517	115	31.6	34.6

Source: Mountain West Research-North, Inc., 1982.



It should also be noted that these employment and income figures are based on the assumptions delineated in Section 5.4.1 and do not reflect the increased employment and income of Crow tribal members that could result if off-reservation mines practiced significant levels of Indian preference in hiring or from Crow dividends from royalties and a possible Crow severance tax. Also not included are the potential employment benefits that would result from accelerated highway construction funded by the new federal gasoline tax. Realization of these employment opportunities could make the forecasts presented in the report conservative.

#### 8.5.2.2 Social Life and Cultural Diversity

For this discussion, please see the Socioeconomic Assessment Report prepared by the Crow Tribe. (AITS 1983).

#### 8.5.2.3 Housing

Because the Consol Level 1 and Level 2 mines are not forecast to result in any in-migration of Crow Indians to the Crow Reservation, it would not have any housing impacts on the Crow Indian population. Although the mines would result in some in-migration of non-Indians to the Crow Reservation, their numbers would be so small as to make Consol levels 1 and 2 scenarios' housing demand almost indistinguishable from baseline housing demand. Hence, the Consol levels 1 and 2 scenarios' housing impacts for the Crow Reservation are not presented here. The reader who may be interested in the small difference between the Consol scenarios' and baseline's demand is referred to the housing demand tables presented in Appendix B.

#### 8.5.2.4 Facilities and Services

Since requirements for personnel, capital facilities, and equipment are forecast primarily from service area populations, the absence of population effects from the Consol Mine means a corresponding absence of facilities/services effects. Table 4.5.2.4-1 and Appendix D illustrate the similarity of the baseline and Consol populations that determine the requirements for personnel, capital facilities, and equipment. Given the similarity, no effects from the Consol Mine are anticipated; conditions under the Consol scenario are forecast as described for the baseline (see Section 4.5.2.5).

#### 8.5.2.5 Fiscal

The Consol Mine is forecast to have no effect on the fiscal condition of the Crow Reservation, lacking as it does any notable population, housing, or revenue effects for this area. Baseline fiscal conditions, described in Section 4.5.2.5, would remain unchanged under the Consol scenario.

### 8.5.3 Crow Agency and Northeast Area

#### 8.5.3.1 Introduction

This section presents the Consol Mine impact forecasts for Crow Agency and the northeast area of the Crow Indian Reservation. The section is divided into five subsections. Section 8.5.3.2 presents the population and economic impact forecasts. Section 8.5.3.3 discusses social life and cultural diversity under the Consol scenario. Section 8.5.3.4 discusses housing impact forecasts. Finally, sections 8.5.3.5 and 8.5.3.6 describe facilities/services and fiscal impact forecasts, respectively.



#### 8.5.3.2 Population and Economy

Because the Consol Mine would not cause Crow Indian in-migration to Crow Agency or the northeast area, its impact on the Crow population would be limited to employment and income (see Section 4.2.2.1). In 1990, when operations employment at the Consol Level 1 Mine would have reached its peak, Crow Indian employment in Crow Agency and the northeast reservation would be 591 workers, or 16 workers above forecast baseline employment forecast of 575 workers. Labor income in 1990 under the Consol Level 1 scenario would be \$9.99 million, or about \$440,000 above forecast baseline labor income of \$9.55 million. (Mountain West Research-North, Inc., 1982.)

By the year 2000, when operations employment at the Consol Level 2 Mine would have reached its peak, Crow Indian employment in Crow Agency and the northeast reservation would be 777 workers, or 25 workers above the baseline employment forecast of 752 workers. In 2000, labor income under the Consol Level 2 scenario would be \$13.40 million, or about \$660,000 above forecast baseline labor income of \$12.74 million. (Mountain West Research-North, Inc., 1982.)

#### 8.5.3.3 Social Life and Cultural Diversity

For this discussion, please see the Socioeconomic Assessment Report prepared by the Crow Tribe. (AITS 1983).

#### 8.5.3.4 Housing

Because the Consol Level 1 and Level 2 mines are not forecast to result in any in-migration of Crow Indians to Crow Agency or the northeast area, it would not have any housing effects on the Crow Indian population there. Although the Consol Level Mine would result in some in-migration of non-Indians to the area as discussed in Chapter 2, their numbers would be so small as to make Consol Level 1 and 2 scenarios' housing demand almost indistinguishable from the baseline. Detailed housing demand data for Crow Agency and the northeast area are not presented here, but are included in Appendix B.

#### 8.5.3.5 Facilities and Services

Since requirements for personnel, capital facilities, and equipment are forecast primarily from service area populations, the absence of population effects from the Consol Mine means a corresponding absence of facilities/services effects. Table 4.1-4 and Appendix D illustrate the similarity of the baseline and Consol populations that determine the requirements for personnel, capital facilities, and equipment. Given this similarity, no effects from the Consol Mine are anticipated; conditions under the Consol scenario are forecast as described for the baseline (see Section 4.5.3.5).

#### 8.5.3.6 Fiscal

The Consol Mine is forecast to have no effect on the fiscal condition of Crow Agency or the northeast area, lacking as it does any notable population, housing, or revenue effects for this area. Baseline fiscal conditions, described in Section 4.5.3.6, would remain unchanged under the Consol scenario.

#### 8.5.4 Lodge Grass and Southeast Area

##### 8.5.4.1 Introduction

This section presents the Consol Mine impact forecasts for Lodge Grass and the southeast area of the Crow Indian Reservation. The section is divided into five subsections. Section 8.5.4.2 presents the population and economic impact forecasts. Section 8.5.4.3 discusses social life and cultural diversity under the Consol scenario. Section 8.5.4.4 discusses housing impact forecasts. Finally, sections 8.5.4.5 and 8.5.4.6 discuss facilities/services and fiscal impact forecasts, respectively.

##### 8.5.4.2 Population and Economy

Because the Consol Mine would not cause Crow Indian in-migration to Lodge Grass of the southeast area, its impact on the Crow population would be limited to employment and income. In 1990, when operations employment at the Consol Level 1 Mine would have reached its peak, Crow Indian employment in Lodge Grass and the southeast reservation would be 354 workers, or 27 workers above the baseline forecast of 327 workers. Labor income in 1990 under the Consol Level 1 scenario would be \$5.78 million, or about \$780,000 above forecast baseline labor income of \$5 million. (Mountain West Research-North, Inc., 1982.)

By the year 2000, when operations employment at the Consol Level 2 Mine would have reached its peak, Crow Indian employment in Lodge Grass and the southeast reservation would be 450 workers, or 44 workers above forecast baseline employment of 406 workers. In 2000, labor income under the Consol Level 2 scenario would be \$7.87 million, or about \$1,240,000 above forecast baseline labor income of \$6.63 million. (Mountain West Research-North, Inc., 1982.)

##### 8.5.4.3 Social Life and Cultural Diversity

For this discussion, please see the Crow Socioeconomic Assessment Report prepared by the Crow Tribe (AITS 1983).

##### 8.5.4.4 Housing

Because the Consol mines are not forecast to result in any in-migration of Crow Indians to Lodge Grass or the southeast area, it would not have any housing impacts on the Crow Indian population there. Although the Consol mines would result in some in-migration of non-Indians to the Crow Reservation, as discussed in Chapter 2, their numbers would be so small as to make the Consol scenarios' housing demand almost indistinguishable from baseline housing demand. Hence, the Consol scenarios' housing impacts for the Crow Reservation are not presented here, but are included in Appendix B.

##### 8.5.4.5 Facilities and Services

Since requirements for personnel, capital facilities, and equipment are forecast primarily from service area populations, the absence of population effects from the Consol Mine means a corresponding absence of facilities/service effects. Table 4.14 and Appendix D illustrate the similarity of the baseline and Consol populations that determine the requirements for personnel, capital facilities, and equipment. Given this similarity, no effects from the Consol Mine are anticipated, conditions under the Consol Scenario are forecast as described for the baseline (see Section 4.5.4.6).

#### 8.5.4.6 Fiscal

The Consol Mine is forecast to have no effect on the fiscal condition of Lodge Grass or the southeast area, lacking as it does any notable population, housing, or revenue effects for this area. Baseline fiscal conditions, described in Section 4.5.2.5, would remain unchanged under both Consol scenarios.

### 8.5.5 Central Area

#### 8.5.5.1 Introduction

This section presents the Consol Mine impact forecasts for the central area of the Crow Indian Reservation. Section 8.5.5.2 presents population and economic impact forecasts. Section 8.5.5.3 discusses facilities/services conditions under the Consol scenario.

#### 8.5.5.2 Population and Economy

Because the Consol Mine would not cause Crow Indian in-migration to the central area, the impacts on the Crow population would be limited to employment and income. In 1990, when operations employment at the Consol Level 1 Mine would have reached its peak, Crow Indian employment in the central part of the reservation would be eighty-four workers, or two workers above forecast baseline employment of eighty-two workers. Labor income in 1990 under the Consol Level 1 scenario would be \$1.27 million, or about \$50,000 above forecast baseline labor income of \$1.22 million. (Mountain West Research-North, Inc., 1982.)

By the year 2000, when operations employment at the Consol Level 2 Mine would have reached its peak, Crow Indian employment in the central part of the reservation would be ninety-one workers, or three workers above forecast baseline employment of eighty-eight workers. In 2000, labor income under the Consol Level 2 scenario would be \$1.52 million, or about \$80,000 above forecast baseline labor income of \$1.44 million. (Mountain West Research-North, Inc., 1982.)

#### 8.5.5.3 Other Topical Areas of Importance

##### Facilities and services

Since requirements for personnel, capital facilities, and equipment are forecast primarily from service area populations, the absence of population effects from the Consol Mine means a corresponding absence of facilities/service effects. Table 4.1-1 and Appendix D illustrate the similarity of the baseline and Consol populations which determine the requirements for personnel, capital facilities, and equipment. Given this similarity, no effects from the Consol Mine are anticipated; conditions under the Consol Scenario are forecast as described for the baseline (see Section 4.5.3.3).

### 8.5.6 West Area

#### 8.5.6.1 Introduction

This section presents the Consol Mine impact forecasts for the west area of the Crow Indian Reservation. Section 8.5.6.2 presents population and economic impact forecasts. Section 8.5.6.3 discusses facilities/services conditions under the Consol scenario.

#### 8.5.6.2 Population and Economy

Because the Consol Mine would not cause Crow Indian in-migration to the west area, its impacts on the Crow population would be limited to employment and income. In 1990, when operations employment at the Consol Level 1 Mine would have reached its peak, Crow Indian employment in the western part of the reservation would be eighty-one workers, exactly the same as forecast under baseline conditions. Labor income in 1990 under the Consol Level 1 and baseline scenarios would be \$1.23 million. (Mountain West Research-North, Inc., 1982.)

By the year 2000, when operations employment at the Consol Level 2 Mine would have reached its peak, Crow Indian employment in the western part of the reservation would be eighty-seven workers, exactly the same as forecast under baseline conditions. In 2000, labor income under the Consol Level 2 and baseline scenarios would be \$1.46 million. (Mountain West Research-North, Inc., 1982.)

Since requirements for personnel, capital facilities, and equipment are forecast primarily from service area populations, the absence of population effects from the Consol Mine means a corresponding absence of facilities/services effects. Table 4.1-1 and Appendix D illustrate the similarity of the baseline and Consol populations which determine the requirements for personnel, capital facilities, and equipment. Given this similarity, no effects from the Consol Mine are anticipated; conditions under the Consol scenario are forecast as described for the baseline (see Section 4.5.6.3).

### 8.6 Northern Cheyenne Reservation

#### 8.6.1 Introduction

This section presents the Consol Mine impact forecasts for the Northern Cheyenne Indian Reservation. Section 8.6.2 describes the population and economic impact forecasts for the reservation as a whole, including both Big Horn and Rosebud counties. More detailed population and economic impact forecasts for the Big Horn County portion of the reservation are presented in Appendix B. Because the Consol mine would not cause any in-migration to the reservation, detailed housing, social, facilities/services, and fiscal forecasts are not presented here.

#### 8.6.2 Employment and Income

Because the Consol Level 1 and 2 mines are not forecast to cause Northern Cheyenne Indians to return to the Northern Cheyenne Reservation, their impact on the Northern Cheyenne Indians would be limited to employment in income. As shown in Table 8.6.2-1, which shows five-year increments, the Consol Level 1 Mine would increase employment among Northern Cheyenne Indians by twenty-one workers in 1990 and also by twenty-one workers in 1995. As shown in Table 8.6.2-2, the Consol Level 2 Mine would have the same employment impacts as the Consol Level 1 Mine through 1995, but would increase employment by at least thirty workers through 2010. As shown, Consol 1 and 2 employment would cause a slight reduction in the unemployment rate in each year during which there is an employment impact. In 1990, when the Consol Level 1 Mine would be at full operations employment, the total labor income of Northern Cheyenne Indians who live only in the Big Horn County portion of the Northern Cheyenne Indian Reservation would be \$4.0 million, about \$0.5 million or \$500,000 above the forecast baseline labor income of \$3.5 million. In 2000, when the Consol Level 2 Mine would be at full operations, Big Horn County Northern Cheyenne labor income would be \$5.0 million or about \$0.8 million above the forecast baseline income in 2000 of \$4.2 million. (Mountain West Research-North, Inc., 1982.)



TABLE 8.6.2-1

Consol Level 1 Scenario Forecast  
Northern Cheyenne Population, Labor Force, and Employment  
Northern Cheyenne Reservation  
(Big Horn and Rosebud County)

Year	Consol Level 1 Scenario and Baseline Scenario			Employment		Unemployment Rate (Percent)	
	Population	Labor Force	Labor Force Participation Rate (Percent)	Consol Level 1 Scenario	Baseline Scenario	Consol Level 1 Scenario	Baseline Scenario
1980	3,255	1,007	30.9	749	749	25.6	25.6
1985	3,583	1,156	32.3	897	897	22.4	22.4
1990	3,960	1,318	33.3	879	858	33.3	34.9
1995	4,324	1,514	35.0	902	881	40.4	41.8
2000	4,670	1,662	35.6	911	911	45.2	45.2
2005	4,985	1,795	36.0	948	948	47.2	47.2
2010	5,265	1,917	36.4	988	988	48.5	48.5
2015	NF	NF	NF	NF	NF	NF	NF

Source: Mountain West Research-North, Inc., 1982.

Note: NF = Not forecast.



TABLE 8.6.2-2

Consol Level 2 Scenario Forecast  
Northern Cheyenne Population, Labor Force, and Employment  
Northern Cheyenne Reservation  
(Big Horn and Rosebud County)

Year	Consol Level 2 Scenario and Baseline Scenario				Employment		Unemployment Rate (Percent)	
	Population	Labor Force	Labor Force Participation Rate (Percent)	Consol Level 2 Scenario	Baseline Scenario	Impact	Consol Level 2 Scenario	Baseline Scenario
1980	3,255	1,007	30.9	749	749	0	25.6	25.6
1985	3,583	1,156	32.3	898	897	1	22.4	22.4
1990	3,960	1,318	33.3	879	858	21	33.3	34.9
1995	4,324	1,514	35.0	902	881	21	40.4	41.8
2000	4,670	1,662	35.6	944	911	33	43.2	45.2
2005	4,985	1,795	36.0	978	948	30	45.5	47.2
2010	5,265	1,917	36.4	1,024	988	36	46.6	48.5
2015	NF	NF	NF	NF	NF	NF	NF	NF

Source: Mountain West Research-North, Inc., 1982.

Note: NF = Not forecast.

## 8.7 Sheridan County and Communities

### 8.7.1 Introduction

This section presents the Consol Mine impact forecasts for Sheridan County and its communities. Section 8.7.2 presents the impact forecasts for Sheridan County as a whole. Section 8.7.3 discusses the impact forecasts for the city of Sheridan and the greater Sheridan area. Section 8.7.4 focuses on the impact forecasts for Ranchester, Dayton, and the surrounding area. Finally, Section 8.7.5 presents the impact forecasts for the rest of Sheridan County.

Throughout this section, the level of detail presented is scaled to the magnitude of potential impacts. The sections which focus on Sheridan, Ranchester, Dayton and the surrounding area present a full set of population, economic, social life, housing, facilities/service, and fiscal impact forecasts. However, because the level of impact in the rest of Sheridan County (which includes the southern portion of the county) is expected to be less significant, Section 8.7.5 focuses on the population and economic impact forecasts and covers other topical areas of interest only when warranted by the potential level of impact.

### 8.7.2 Sheridan County

#### 8.7.2.1 Population and Economy

##### Employment and income

As shown in Table 8.7.2.1-1, the Consol Level 1 Mine's population effects in Sheridan County would begin in 1985 and last through 2015. During the 1985 to 1987 construction period, the incremental population effect is forecast to reach a maximum of 2,725 people in 1987 when operations workers would also be present. In 1987, the project-related population would be about 9 percent of the total county population. During the operation period, which would begin in 1987, the population effect is forecast to reach 2,714 people by 1989 and then remain relatively constant through 1994. During this time, the population attributable to the project would represent about 8.6 percent of the total county population. After 2000, the Consol Level 1 population is forecast to be less than the baseline population. This apparent anomaly is explained by the fact that the in-migrating population of the 1980s and 1990s is younger, with a higher labor force participation rate than the baseline population. As a result, when declining jobs cause the out-migration of residents, these modified demographic characteristics mean that the remaining jobs would support fewer people than under baseline conditions. These same changes in the demographic structure of the population account for the reduced number of births under with-project than baseline scenarios. In actuality, the population would be more likely to adjust its labor force participation rate in response to the number of jobs and the Consol Level 1 and baseline populations would be more nearly equal.

As shown in Table 8.7.2.1-2, the population effects under the Consol Level 2 scenario would be identical to those of the Consol Level 1 scenario through 1995 but then rise steadily to the 4,221 person level by 2010. In 2010, the Consol-related population would represent about 11.7 percent of the total county population. By the year 2015, the Consol Level 2 population effect is forecast to be 1993 people.

As shown in Table 8.7.2.1-3, the total employment effect under the Consol Level 1 scenario during the construction period would be 13 workers in 1985, 578 workers in 1986, and 1,234 workers in 1987, when operations of the mine would commence. In 1987, the employment effect would be about 8 percent of total county employment. Total employment impacts during the operations period are forecast to remain constant at about 1,270 workers through 1995 and then decline to about 540 workers through 1998. After the Consol Level 1 Mine was closed in 1998, the employment impacts of the project would remain at the 70 to 90 worker

TABLE 8.7.2.1-1  
Consol Level 1 Scenario Impact  
Population  
Sheridan County

Year	Total Population	Births	Deaths	Employment- Related Migration	Non-employment Related Migration	Total Change
1980	0	0	0	0	0	0
1981	0	0	0	0	0	0
1982	0	0	0	0	0	0
1983	0	0	0	0	0	0
1984	0	0	0	0	0	0
1985	27	0	0	27	0	27
1986	1368	0	0	1341	-0	1341
1987	2725	25	2	1336	-3	1356
1988	2296	50	5	-469	-5	-429
1989	2714	44	5	384	-5	417
1990	2667	50	6	-85	-5	-46
1991	2682	46	6	-18	-5	15
1992	2661	44	7	-52	-5	-20
1993	2659	40	7	-30	-5	-2
1994	2683	38	7	0	-6	24
1995	2640	36	8	-65	-6	-43
2000	1527	2	9	-175	-5	-188
2005	-129	-25	9	-134	-1	-171
2010	-88	-11	10	33	0	12
2015	-28	-4	3	19	0	12

Source: Mountain West Research-North, Inc., 1982.

Notes: Details may not sum due to rounding.

All values except total population represent annual changes.

TABLE 8.7.2.1-2

Consol Level 2 Scenario Impact  
Population  
Sheridan County

Year	Total Population	Births	Deaths	Employment- Related Migration	Non-employment Related Migration	Total Change
1980	0	0	0	0	0	0
1981	0	0	0	0	0	0
1982	0	0	0	0	0	0
1983	0	0	0	0	0	0
1984	0	0	0	0	0	0
1985	27	0	0	27	0	27
1986	1368	0	0	1341	0	1341
1987	2725	25	2	1336	-3	1356
1988	2296	50	5	-469	-5	-429
1989	2714	44	5	384	-5	417
1990	2667	50	6	-85	-5	-46
1991	2682	46	6	-18	-5	15
1992	2661	44	7	-52	-5	-20
1993	2659	40	7	-30	-5	-2
1994	2683	38	7	0	-6	24
1995	2640	36	8	-65	-6	-43
2000	4160	62	15	-87	-10	-50
2005	4164	54	19	-18	-9	6
2010	4221	51	23	-3	-9	16
2015	1993	24	11	-1118	-9	-1114

Source: Mountain West Research-North, Inc., 1982.

Notes: Details may not sum due to rounding.

All values except total population represent annual changes.

TABLE 8.7.2.1-3

Consol Level 1 Scenario Impact  
Total Employment by Sector  
Sheridan County

Year	Ag Propri etors	Ag Labor	Mining	Con struc tion	Manu factu ring	TCPU	Trade	FIRE	Ser vices	Gov ern ment	Other +com.	Total
1980	0	0	0	0	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0	0	0	0	0
1984	0	0	0	0	0	0	0	0	0	0	0	0
1985	0	0	0	7	0	0	1	0	1	2	0	13
1986	0	0	174	126	17	17	83	10	51	96	0	578
1987	0	0	395	219	38	62	178	22	111	206	0	1234
1988	0	0	474	32	34	75	156	20	99	185	0	1077
1989	0	0	532	38	41	105	186	23	115	214	0	1257
1990	0	0	532	38	41	105	188	23	116	216	0	1262
1991	0	0	532	38	42	105	188	23	117	217	0	1266
1992	0	0	532	38	42	106	189	23	117	218	0	1269
1993	0	0	532	39	42	106	191	23	118	220	0	1274
1994	0	0	532	39	42	106	192	24	119	221	0	1279
1995	0	0	532	39	43	107	193	24	120	223	0	1284
2000	0	0	0	3	3	3	15	2	10	20	0	59
2005	0	0	0	4	4	4	18	2	13	24	0	72
2010	0	0	0	4	4	5	22	3	14	28	0	82
2015	0	0	0	5	5	6	25	4	17	30	0	92

Source: Mountain West Research-North, Inc., 1982.

Note: Details may not sum due to rounding.



level through 2015. As shown in the table, the largest employment increases are forecast to occur in the mining and construction sectors, which in turn stimulate employment impacts in the other sectors.

As shown in Table 8.7.2.1-4, the Consol Level 2 employment impacts would be identical to the Consol Level 1 impacts through 1995, but then would increase to the 2,100 worker level through the year 2010, before declining to 1,017 workers by 2015. In 2010, the Consol Mine-related employment would represent about 10 percent of total county employment.

As shown in tables 8.7.2.1-5 and 8.7.2.1-6, the employment effects noted above would be about evenly divided between basic and nonbasic jobs in all of the forecast years for both the Consol Level 1 and 2 scenarios.

Table 8.7.2.1-7 presents the income effects that are forecast to occur under the Consol Level 1 scenario. As shown, the total personal income that would accrue to Sheridan County residents as a result of the Consol Level 1 Mine would peak at \$30.3 million per year during the construction period, fall back, and then increase and stabilize somewhat at about \$32 million per year during the operations period through 1995. After 1995, the personal income impact would decline to \$3 to \$4 million per year through 2015. As shown in Table 8.7.2.1-8, the Consol Level 2 scenario personal income impacts would be identical to those of the Consol 1 scenario through 1995, but would then climb up to about \$52 to \$55 million per year from 1997 through 2010. The Consol Level 1 Mine's impact on per capita personal income in 1990 would be to raise it from \$10,414 (baseline) to \$10,541, a difference of \$127. In 2000, the difference between Consol Level 1 scenario and baseline per capita income is forecast to be negative \$423, a figure that is due to the fact that the Consol Level 1 Mine would cause population to grow faster than income between the years 1990 and 2000. By 2010, the per capita income impact would again be positive at \$164. As shown in Table 8.7.2.1-8, the Consol Level 2 Mine would have a per capita income impact of \$247 in 2000 and \$293 in 2010.

#### Commercial opportunities

As shown in Table 8.7.2.1-9, the population and income growth due to the Consol Level 1 Mine would result in about 57 additional commercial opportunities in Sheridan County in 1990 after the temporary construction period population had left and the operations period population had become stabilized. The 1990 level of 630 commercial opportunities would be 20 percent above the current 1982 level.

As shown in Table 8.7.2.1-10, the population and income growth due to the Consol Level 2 Mine would result in about 88 additional commercial opportunities in Sheridan County in 2000 after the temporary construction period population had left and the operations period population had become stabilized. The 2000 level of 680 commercial opportunities would be 29 percent above the current 1982 level.

#### 8.7.2.2 Social Life and Cultural Diversity

As was discussed in Section 8.7.2.1, the incremental population effects of the Consol Level 1 Mine on Sheridan County are moderate -- a maximum increase of about 2,700 people (in 1987 and 1989) out of a county population of about 31,000. Under Level 1 forecasts, these effects are relatively short-lived and cease with mine closure. By the year 2005, no incremental population due to the Level 1 Mine would be present in Sheridan County. Level 2 effects are more pronounced. A maximum population increase of about 4,200 people in 2010 (about 11.7 percent of total county population) would occur in a two-step phase (see Table 6.4.3.1-6) that extends through the end of the forecast period. With Level 2, therefore, the changes discussed below are likely to become firmly incorporated within the region's self-definition.

TABLE 8.7.2.1-4  
 Consol Level 2 Scenario Impact  
 Total Employment by Sector  
 Sheridan County

Year	Ag Propri etors	Ag Labor	Mining	Con struc tion	Manu factu ring	TCPU	Trade	FIRE	Ser vices	Gov ern ment	Other +com.	Total
1980	0	0	0	0	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0	0	0	0	0
1984	0	0	0	0	0	0	0	0	0	0	0	0
1985	0	0	0	7	0	0	1	0	1	2	0	13
1986	0	0	174	126	17	17	83	10	51	96	0	578
1987	0	0	395	219	38	62	178	22	111	206	0	1234
1988	0	0	474	32	34	75	156	20	99	185	0	1077
1989	0	0	532	38	41	105	186	23	115	214	0	1257
1990	0	0	532	38	41	105	188	23	116	216	0	1262
1991	0	0	532	38	42	105	188	23	117	217	0	1266
1992	0	0	532	38	42	106	189	23	117	218	0	1269
1993	0	0	532	39	42	106	191	23	118	220	0	1274
1994	0	0	532	39	42	106	192	24	119	221	0	1279
1995	0	0	532	39	43	107	193	24	120	223	0	1284
2000	0	0	826	63	71	198	318	38	193	357	0	2069
2005	0	0	826	65	73	200	328	40	200	370	0	2107
2010	0	0	826	69	76	204	340	42	209	386	0	2152
2015	0	0	435	32	33	71	150	19	97	180	0	1017

Source: Mountain West Research-North, Inc., 1982.

Note: Details may not sum due to rounding.

TABLE 8.7.2.1-5

Consol Level 1 Scenario Impact  
Employment by Type  
Sheridan County

Year	Total	Non Basic	Basic Total	Basic Non Project	Indirect Basic	Basic Project O&M	Project Construc- tion-Perm	Project Construc- tion-NLoc.
1980	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0
1984	0	0	0	0	0	0	0	0
1985	13	6	7	0	0	0	2	5
1986	578	284	294	0	14	174	30	74
1987	1234	606	627	25	30	395	51	126
1988	1077	543	533	41	18	474	0	0
1989	1257	628	629	66	30	532	0	0
1990	1262	633	629	66	30	532	0	0
1991	1266	637	629	66	30	532	0	0
1992	1269	640	629	66	30	532	0	0
1993	1274	645	629	66	30	532	0	0
1994	1279	650	629	66	30	532	0	0
1995	1284	655	629	66	30	532	0	0
2000	59	59	0	0	0	0	0	0
2005	72	72	0	0	0	0	0	0
2010	82	82	0	0	0	0	0	0
2015	92	92	0	0	0	0	0	0

Source: Mountain West Research-North, Inc., 1982.

Notes: Details may not sum due to rounding.

"Basic project O & M" and "Indirect Basic" represent direct and indirect basic coal mining employment, respectively. No mines are assumed to operate in 2015.

TABLE 8.7.2.1-6

Consol Level 2 Scenario Impact  
Employment by Type  
Sheridan County

Year	Total	Non Basic	Basic Total	Basic Non Project	Indirect Basic	Basic Project O&M	Project Construc- tion-Perm	Project Construc- tion-NonLoc.
1980	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0
1984	0	0	0	0	0	0	0	0
1985	13	6	7	0	0	0	2	5
1986	578	284	294	0	14	174	30	74
1987	1234	606	627	25	30	395	51	126
1988	1077	543	533	41	18	474	0	0
1989	1257	628	629	66	30	532	0	0
1990	1262	633	629	66	30	532	0	0
1991	1266	637	629	66	30	532	0	0
1992	1269	640	629	66	30	532	0	0
1993	1274	645	629	66	30	532	0	0
1994	1279	650	629	66	30	532	0	0
1995	1284	655	629	66	30	532	0	0
2000	2069	1049	1019	133	60	826	0	0
2005	2107	1087	1019	133	60	826	0	0
2010	2152	1133	1019	133	60	826	0	0
2015	1017	513	504	37	32	435	0	0

Source: Mountain West Research-North, Inc., 1982.

Notes: Details may not sum due to rounding.

"Basic project O & M" and "Indirect Basic" represent direct and indirect basic coal mining employment, respectively. No mines are assumed to operate in 2015.

TABLE 8.7.2.1-7

Consol Level 1 Scenario Impact  
Personal Income  
Sheridan County  
(1980 \$000)

Year	Total Labor Income	FICA Payments	Non-labor Income	Residency Adjustment	Total Personal Income	Personal Income Per Capita (1980 \$)
1980	0	0	0	0	0	0
1981	0	0	0	0	0	0
1982	0	0	0	0	0	0
1983	0	0	0	0	0	0
1984	0	0	0	0	0	0
1985	275	12	45	0	308	NC
1986	12660	577	2087	0	14170	NC
1987	26937	1227	4592	0	30302	NC
1988	24013	1094	4330	0	27249	NC
1989	27732	1264	5048	0	31517	NC
1990	27813	1267	5227	0	31773	127
1991	27858	1269	5369	0	31958	NC
1992	27860	1269	5513	0	32104	NC
1993	27964	1274	5692	0	32382	NC
1994	28029	1277	5884	0	32636	NC
1995	28098	1280	6080	0	32897	NC
2000	771	35	2316	0	3053	-423
2005	927	42	2787	0	3673	NC
2010	1065	48	3189	0	4206	-164
2015	1195	54	3524	0	4665	158

Source: Mountain West Research-North, Inc., 1982.

Notes: Details may not sum due to rounding.

Negative per capita income in 2000 is due to greater population increase than income increase.

NC = not calculated.



TABLE 8.7.2.1-8

Consol Level 2 Scenario Impact  
Personal Income  
Sheridan County  
(1980 \$000)

Year	Total Labor Income	FICA Payments	Non-labor Income	Residency Adjustment	Total Personal Income	Personal Income Per Capita (1980 \$)
1980	0	0	0	0	0	0
1981	0	0	0	0	0	0
1982	0	0	0	0	0	0
1983	0	0	0	0	0	0
1984	0	0	0	0	0	0
1985	275	12	45	0	308	NC
1986	12660	577	2087	0	14170	NC
1987	26937	1227	4592	0	30302	NC
1988	24013	1094	4330	0	27249	NC
1989	27732	1264	5048	0	31517	NC
1990	27813	1267	5227	0	31773	127
1991	27858	1269	5369	0	31958	NC
1992	27860	1269	5513	0	32104	NC
1993	27964	1274	5692	0	32362	NC
1994	28029	1277	5884	0	32636	NC
1995	28098	1280	6080	0	32897	NC
2000	44709	2037	9983	0	52655	245
2005	45254	2062	11433	0	54624	NC
2010	45896	2092	13860	0	56936	293
2015	21689	988	6095	0	26796	127

Source: Mountain West Research-North, Inc., 1982.

Notes: Details may not sum due to rounding.

NC = not calculated.

TABLE 8.7.2.1-9

Commercial Opportunities  
 Consol Level 1 Scenario  
 Sheridan County, Wyoming  
 1990

Type of Commercial Opportunity	With Project	Baseline	Impact
<u>Retail</u>			
Gasoline Service Station	52	47	5
Eating and Drinking Place	71	65	6
Grocery and Other Food Store	24	22	2
Motor Vehicle Dealers and Auto Supply Store	21	19	2
Clothing and Shoe Store	19	17	2
Lumber, Hardware, and Mobile Home Dealers	23	21	2
Furniture and Household Appliance Stores	16	15	1
Department Stores	5	4	1
Drug, Variety, General Merchandise Stores	29	26	3
Sporting Goods, Hobby, Flowers, Gift, Sewing Stores	26	24	2
Liquor Store	11	10	1
Jewelry Store	8	7	1
Book Store and Newstands	3	3	0
<u>Service</u>			
Hotels, Motels, Commercial Campgrounds	57	52	5
Beauty and Barber Shops	32	30	2
Auto Repair Shops	32	29	3
Legal, Accounting, Advertising, Data Processing	59	54	5
Engineering, Architecture, Surveying	14	13	1
Equipment and Auto Renting and Leasing	10	9	1
Laundries	11	10	1
Appliance, Furniture, and Shoe Repair	14	13	1
Movie Theatres and Bowling Alleys	9	8	1
Janitorial Services	13	12	1
Photographic Studios	7	6	1
Car Washes	5	4	1
Funeral Services	3	2	1
<u>Finance and Real Estate</u>			
Real Estate Office	28	25	3
Insurance Agencies	13	12	1
Personal Credit Institution	7	7	0
Commercial Bank	7	6	1
Savings and Loan Association	1	1	0
<b>TOTAL</b>	<b>630</b>	<b>573</b>	<b>57</b>

Source: Mountain West Research-North, Inc., 1982.

Note: Forecast population for 1990: 31,437.

TABLE 8.7.2.1-10

Commercial Opportunities  
 Consol Level 2 Scenario  
 Sheridan County, Wyoming  
 2000

Type of Commercial Opportunity	With Project	Baseline	Impact
<u>Retail</u>			
Gasoline Service Station	56	49	7
Eating and Drinking Place	77	67	10
Grocery and Other Food Store	26	23	3
Motor Vehicle Dealers and Auto Supply Store	23	20	3
Clothing and Shoe Store	20	18	2
Lumber, Hardware, and Mobile Home Dealers	25	21	4
Furniture and Household Appliance Stores	17	15	2
Department Stores	5	4	1
Drug, Variety, General Merchandise Stores	31	27	4
Sporting Goods, Hobby, Flowers, Gift, Sewing Stores	29	25	4
Liquor Store	12	11	1
Jewelry Store	9	8	1
Book Store and Newstands	3	3	0
<u>Service</u>			
Hotels, Motels, Commercial Campgrounds	62	54	8
Beauty and Barber Shops	35	31	4
Auto Repair Shops	34	30	4
Legal, Accounting, Advertising, Data Processing	63	56	7
Engineering, Architecture, Surveying	15	13	2
Equipment and Auto Renting and Leasing	10	9	1
Laundries	12	10	2
Appliance, Furniture, and Shoe Repair	16	14	2
Movie Theatres and Bowling Alleys	10	8	2
Janitorial Services	14	12	2
Photographic Studios	8	6	2
Car Washes	5	4	1
Funeral Services	3	2	1
<u>Finance and Real Estate</u>			
Real Estate Office	30	26	4
Insurance Agencies	14	12	2
Personal Credit Institution	8	7	1
Commercial Bank	7	6	1
Savings and Loan Association	1	1	0
<b>TOTAL</b>	<b>660</b>	<b>592</b>	<b>88</b>

Source: Mountain West Research-North, Inc., 1982.

Note: Forecast population for 2000: 33,864.

It is anticipated that the additional population and employment generated by the project will ensure that the trends initiated during the 1970s and encouraged by baseline changes will continue. With the Consol Mine (especially Level 2), the population will continue to be younger than it otherwise would be, and the additional employment opportunities created by the mine will attract persons of somewhat greater social diversity than would exist without the project population, in part because the project activities will create a greater flow of persons through the county. This will be especially true of Consol Level 2, which introduces a second round of construction workers into the region. The increased income in the region will support greater economic activity and diversity, especially in the greater Sheridan area. An important determinant of the extent of economic diversification will be the perceptions that managers and entrepreneurs develop about the longevity and stability of the increased economic levels. The experience of the early 1980s may inhibit business development, as greater caution will be taken to avoid the risks of over-expansion. The same will be true of governmental decisions regarding facility and service expansion. Although forecasts for additional population will encourage construction of new facilities, the concern for unanticipated downturns is likely to cause decision-makers to delay such action for as long as possible. Since a wait and see attitude has been typical of the county government in the past, this will not represent a radical departure from its established approach.

During the late-1980s, (and again just before the turn of the century for Consol Level 2), the county will need to make provisions for an influx of mine construction workers and supporting population. It is likely that discussions will be held with mine owners concerning the provision of company sponsored worker housing as the availability of housing, particularly to meet a temporary demand, is often a problem, and residents of Sheridan are already concerned about the high cost of housing (see Section 8.7.2.3). The ability of county officials to negotiate such mitigation efforts would mark an important milestone in government-industrial relationships.

The increased importance of mining in the area economy will encourage local business and social service (including educational) interests to develop additional linkages to mining. Although in the short run this will provide additional opportunities and diversity in the community, the basic dependence upon mining will increase exposure to the risks of unanticipated downturns in the mining industry and to greater impacts during the phase-out period. It should be noted that for the Level 2 scenario, this phase-out period occurs considerably later, thus providing both time for further linkages to be formed and greater benefits to be derived from them. Both residents and leaders in the county will become increasingly concerned if efforts for diversification are not pursued successfully during the forecast period. The experience of the early 1980s has created an unease about large expansions that are dependent upon continued mining activities. This is especially true in the Sheridan area, which does not have access to severance tax funds from the mining activities to ease or prevent this "bust" cycle.

The increased population (due both to baseline and with-project growth) will accelerate the rate and degree of change in social organization over that discussed in Section 4.7.2.2. Most of these effects will be felt at the community level and are therefore discussed in subsequent sections. Some, however, will be more diffused throughout the county. The increased population will cause additional pressure on the area ranchers to open their land for hunting, fishing, and other outdoor recreational activities. Though most ranchers in the county have traditionally been willing to accommodate such requests, the magnitude of the population will raise the demand for such activities to the level that some ranchers may seek to avoid the issue or to protect themselves by simply closing and posting their land or by charging trespass fees. Interviews with rural residents in Sheridan County indicate that such a change in tradition would be made with regret. If widespread, it is likely that such actions would create increased pressure on public lands, decreased satisfaction by both longtime and newcomer residents with the more urbanized areas of the county, and increased incidence of trespassing and vandalism. However, unless active measures are taken to avert such consequences, it appears likely that this outcome will occur sooner or later.



It is expected that the experience gained by the county during the 1970s will enable it to deal expeditiously with the forecast population growth. It is likely that the handling of growth will prove to be easier than the handling of the decline the county has experienced during the early 1980s and will experience at the turn of the century under the forecast scenario for Consol Level 1, and later for Consol Level 2. It is generally easier to plan for and control growth than decline in part because economic decline and loss of population are usually more beyond the control of the local community/county than growth, which can be at least somewhat controlled by local regulations. In addition, funds have historically been more readily available in dealing with problems during the growth than during the bust cycle.

#### Perceptions of the community and indicators of social well-being

As during the 1970s, the residents of Sheridan County will place different interpretations upon the changes that take place as a result of the mining activity. Most will continue to regret the effect of mining on the local environment and will be concerned about possible long-term effects on water and agriculture. If area residents perceive that the current trends toward increased landholding by energy companies (which removes land from agricultural use) are accelerated by the project, many will disapprove. Increased traffic congestion and pressure on housing will also be viewed with displeasure by most area residents, particularly the elderly who feel themselves especially inconvenienced and affected by such change. The transients present in the community during the construction phase of the project will probably be considered a detriment to the community, just as they were during the 1970s. At the same time, most residents genuinely wish the community and county to prosper and for residents to have satisfying and well-paying jobs. They do not, however, want to sacrifice the amenities, the small-town character, nor the aesthetics of their community.

Aside from the changes in material well-being that are described in the other sections, the incremental changes in demographic and social characteristics of the community due to the project will be slight and not sufficient to cause predictable effects on behavioral indicators such as crime and suicide. These types of indicators are expected to be much more dramatically affected by changes in baseline conditions (including national trends) than by the project.

#### 8.7.2.3 Housing

As shown in Table 8.7.2.3-1, housing deficits under the Consol Level 1 scenario in Sheridan County are forecast to occur during the construction period in 1986 and 1987 and peak at 373 housing units. Because housing deficits are not forecast to occur under the baseline scenario in Sheridan County all of these deficits can be attributed to the Consol Level 1 project.

As shown in Table 8.7.2.3-2, housing deficits under the Consol Level 2 scenario would also occur during the second construction period in 1998, when the thirty unit deficit could be attributed solely to the Consol Level 2 Mine. More detail on the Consol Level 1 and 2 mines' impact on housing demand in Sheridan County subareas is provided in subsequent sections. The actual housing demand forecasts by type of unit for each area under these two scenarios are summarized in tables found in Appendix B. It should be noted that these forecasts do not take into account the effect of increased income on housing demand, which is discussed more fully in Section 2.3.3, or the potential for area builders to expand capacity in response to extended increases in demand.

#### 8.7.2.4 Facilities and Services

In general, the facilities and services requirements for Sheridan County forecast for the Consol Level 1 scenario are similar to those for the baseline, although the sizing of facilities and associated capital outlays for several facilities are greater due to the larger population base. (See Appendix C.)



TABLE 8.7.2.3-1

Consol Level 1 Scenario Forecast  
Housing Unit Demand/Supply  
Sheridan County

Year	Total Demand	Incremental Demand Over Previous Year	Local Supply Response (Limit = 500)	Cumulative (Deficit) Surplus due to Project
1980	10,457			
1981	10,959	502	500	0
1982	11,041	82	84	0
1983	11,135	94	94	0
1984	11,227	92	92	0
1985	11,554	327	327	0
1986	12,329	775	500	(225)
1987	12,997	648	500	(373)
1988	13,086	109	482	0
1989	13,469	383	383	0
1990	13,709	240	240	0
1991	13,857	148	148	0
1992	14,049	192	192	0
1993	14,224	175	175	0
1994	14,380	156	156	0
1995	14,606	226	226	0
1996	14,766	160	160	0
1997	14,873	107	107	0
1998	15,029	156	156	0
1999	14,923	-106	0	106
2000	15,075	152	46	0
2005	14,071	-1,004 for 5 years	0 for 5 years	1,004 for 5 years
2010	15,108	1,037 for 5 years	33 for 5 years	0 for 5 years
2015	15,080	28 for 5 years	0 for 5 years	28 for 5 years

Source: Mountain West Research-North, Inc., 1982.

TABLE 8.7.2.3-2

Consol Level 2 Scenario Forecast  
Housing Unit Demand/Supply  
Sheridan County

Year	Total Demand	Incremental Demand Over Previous Year	Local Supply Response (Limit = 500)	Cumulative (Deficit) Surplus due to Project
1980	10,457			
1981	10,959	502	500	0
1982	11,041	82	84	0
1983	11,135	94	94	0
1984	11,227	92	92	0
1985	11,554	327	327	0
1986	12,329	775	500	(225)
1987	12,997	648	500	(373)
1988	13,086	109	482	0
1989	13,469	383	383	0
1990	13,709	240	240	0
1991	13,857	148	148	0
1992	14,049	192	192	0
1993	14,224	175	175	0
1994	14,380	156	156	0
1995	14,606	226	226	0
1996	14,828	222	222	0
1997	15,090	262	262	0
1998	15,620	530	500	(30)
1999	15,855	239	269	0
2000	16,080	221	221	0
2005	15,991	-89 for 5 years	0 for 5 years	89 for 5 years
2010	17,031	1,040 for 5 years	951 for 5 years	0 for 5 years
2015	15,980	-1,051 for 5 years	0 for 5 years	1,051 for 5 years

Source: Mountain West Research-North, Inc., 1982.

Facilities and services impacts for Sheridan County for the Consol Level 2 scenario parallel those for the Consol Level 1 scenario through 1995; after which population increases to an increment of 4,221 by 2010 over the baseline case are forecast. The majority of these residents are projected to live in the Sheridan area where public services and facilities are in place to handle population growth. Problems associated with unconcentrated rural-type growth will undoubtedly be experienced if uncontrolled growth is allowed to occur in the unincorporated parts of Sheridan County that are located in close proximity to Sheridan City. All existing public facilities in Sheridan County have been designed to accommodate this amount of growth.

#### Memorial Hospital of Sheridan County

For the Memorial Hospital of Sheridan County, eight additional hospital beds are projected to be needed in 1987 at a cost of \$568,000 under the Consol Level 1 scenario. An additional, but smaller capital requirement (\$44,000) is projected for 1995. (See Appendix C.)

Consol Level 2 demands parallel Consol Level until 1995. In the Consol Level 2 alternative, another additional eight beds are projected for 1995 at a capital cost of \$532,400. Three more beds are projected in 2002 for a cost of \$126,200. (See appendix C.)

#### Social Services

Under the Consol Level 1 scenario, the Sheridan County Division of Public Assistance and Social Services would need to increase its staff from the current level of 13 persons to 16 persons in 1995 and 15.7 persons in 2015 (based on the 1982 ratio of .0005 staff persons per capita). While the 1995 requirement would be about 2.3 persons above the baseline level, the 2015 requirements are identical under both KME and baseline scenarios. Hence, the Consol Level 1 Mine would result in the need for about two additional staff persons above baseline needs in 1995. Under the Consol Level 2 scenario, 1995 and 2015 would be 16 and 16.7 persons, respectively. Hence, Consol Level 2 requirements would be about 2 persons above baseline needs in 1995 and 1 person above baseline needs in 2015.

Based on a space standard of .1 sq. ft. per capita, space requirements under the Consol Level 1 scenario would be 3,202 sq. ft. in 1995 (264 sq. ft. above baseline) and 3,148 sq. ft. in 2015 (3 sq. ft. below baseline). However, if the 1982 space ratio of .3763 sq. ft. per capita is to be maintained, then the current 2,040 sq. ft. of space would need to be expanded to 4,128 sq. ft. in 1995 (341 sq. ft. above baseline) and 4,057 sq. ft. in 2015 (4 sq. ft. below baseline). Hence, regardless of the standard used, the incremental demand generated under the Consol Level 1 scenario would be enough to trigger the addition of 250-350 sq. ft. or about 3 offices above that required under the baseline scenario. While the Consol Level 2 impacts would be identical to Consol Level 1 impacts in 1995, the impact in 2015 would be greater. In 2015, the .1 sq. ft. per capita standard implies a need for 3,350 sq. ft. (199 sq. ft. above baseline) and the .1289 sq. ft. per capita ratio implies a need for 4,318 sq. ft. (257 sq. ft. above baseline). Hence, under the Consol Level 2 scenario, the need for additional space above baseline levels would continue beyond the 1990s to the end of the forecast period.

#### 8.7.2.5 Fiscal

Because it does not generate revenues commensurate with the demands of the increased population, the Consol Level 1 Mine has a negative impact (when compared with the baseline) on the fiscal balance of Sheridan County. Utilizing the assumptions described Chapter 2, Consol Level 1 would result in a negative \$3.5 million impact on the cumulative fiscal balance by 2005. (See Appendix C.)

Because of its greater population effects, the Consol Level 2 scenario shows an even larger negative fiscal impact. The increment reaches \$6 million by 2005. (See Appendix C.)

#### Memorial Hospital of Sheridan County - Consol Level 1

For the Memorial Hospital of Sheridan County, increased capital requirements caused by the population influx associated with the Consol Level 1 scenario result in a slight negative impact on the fiscal balance. By 2005, the cumulative fiscal balance is negative \$143,000. (See Appendix C.) This pattern is aggravated for Consol Level 2, where by 2005, the cumulative fiscal balance is forecast to be a negative \$639,000. (See Appendix C.) As noted in the mitigation discussion, however, the county does have some alternatives to these levels of capital expansion.

#### 8.7.2.6 Schools -- Facilities/Services and Fiscal

##### Sheridan County School District No. 1

Because the mines are located outside the school district, the Consol Mine scenarios have a negative fiscal impact on the district. The negative impact, however, is less than \$100,000 per year. In 2005, the projected cumulative, negative fiscal impact is \$1.5 million. (See Appendix C.)

The Consol projections for physical space do not differ from the baseline for either elementary or high schools in School District No. 1. A peak need for 110 teachers is projected for 1989 to 1994, compared to a peak of 100 teachers in 1989 and 1990 for the baseline case. Also, an additional five support staff are projected between 1989 and 1994.

The increase in staff without a corresponding increase in the district's assessed value leads to higher deficits under the proposed alternative. The greatest deficits are accumulated during the peak impact years of 1989 to 1994.

##### Sheridan County School District No. 2

Additional capacity requirements for the Consol Level 1 Mine are projected for elementary schools, as well as junior and senior high schools. The need for additional elementary school capacity (4,917 sq. ft.) is projected for 1989 at a cost of \$265,000. Junior and senior high school capacity requirements are also substantially greater than those projected for baseline scenario. (See Appendix C.)

Utilizing the assumptions described in Chapter 2, the Consol Level 1 scenario would result in a substantial negative fiscal impact due to increased capital requirements and increased financial pressures on operating budgets. By 2005, the impact on the cumulative fiscal balance is a negative \$11.4 million (see Appendix C), raising from the baseline level of negative \$35.2 million to a negative \$46.6 million..

Given the higher population forecasts, physical facility needs for the Consol Level 2 alternative would be somewhat higher than under the baseline case. No new elementary space is projected under the baseline. An additional 4,900 sq. ft. of space at a cost of \$266,000 are projected for this alternative. An additional 14,554 sq. ft. of junior high school space are projected to Consol Level 2 as opposed to the 5,200 sq. ft. in the baseline projection. The additional cost would be about \$635,000. An additional 36,125 sq. ft. of high school space is anticipated, compared to 17,123 sq. ft. of space under the baseline conditions. The incremental cost is projected to be \$1.3 million. The number of teachers required by the



alternative exceeds the baseline projections by forty-two in the peak year of 1992, an 11.2 percent increase over the baseline forecast of 375 teachers. Increased space and faculty demands without the benefits of mine-related assessed values leads to higher deficits under the Consol Level 2 alternative than under the baseline case. The cumulative deficit for this alternative is \$52.5 million in 2005, \$17.3 million greater than the baseline deficit of \$35.2 million.

### 8.7.3 Sheridan and Area

#### 8.7.3.1 Introduction

This section presents the Consol Mine impacts forecasts for the city of Sheridan and the greater Sheridan area. Section 8.7.3.2 presents the population and economic impact forecasts for each area. Section 8.7.3.3 discusses social life in Sheridan and the Sheridan area under the Consol scenario. The housing impact forecasts are presented in Section 8.7.3.4. Facilities/services and fiscal forecasts are presented in sections 8.7.3.5 and 8.7.3.6, respectively.

#### 8.7.3.2 Population and Economy

As shown in Table 8.7.3.2-1, population effects in the city of Sheridan under the Consol Level 1 scenario would begin in 1985 at 17 people and then grow rapidly to 1,649 people in 1987 when it would represent 9 percent of the city's total population. The population effect would remain at about 1,600 people through 1994 and then decline to 861 people in 2000. As shown in the table, the Consol Level 1 population is forecast to be below the baseline population in 2005, 2010, and 2015. This apparent anomaly is due to the fact that the in-migrating population during the 1980s and 1990s would be younger with a higher labor force participation rate than the baseline population. Hence, when the job opportunities in the area decrease after the year 2000, the remaining jobs would support fewer households and a smaller population than the same number under the baseline scenario when the jobs per population ratio was lower. The population impacts in the greater Sheridan area would follow a similar pattern, with a peak effect of about 850 people (14 percent of the total population) during the operations period.

As shown in Table 8.7.3.2-2, the Consol Level 2 population effects in the city of Sheridan would increase from 1,549 people in 1995 to about 2,500 people in the years 1998 to 2010, before decreasing to 1,193 people in 2015. Between 1998 and 2010, the project-related population would represent about 12 percent of the total population. Similarly, the population impact in the greater Sheridan area would increase from 847 people in 1995 to about 1,270 people in the years 1998 to 2010 and then decrease to 611 people by the year 2015.

In 1990, when operations employment at the Consol Level 1 Mine would have reached its peak, employment in Sheridan would be 9,700 workers, or 739 workers above the baseline employment of 8,961 workers. In the greater Sheridan area, employment would be 2,902 workers, or 416 workers above baseline employment of 2,486 workers. Labor income in 1990 in the city of Sheridan would be \$142.9 million, or \$16.0 million above baseline labor income of \$126.9 million. In the greater Sheridan area, total labor income for 1990 would be \$44.2 million, or \$9.3 million above baseline labor income of \$34.9 million.

In the year 2000, when operations employment at the Consol Level 2 Mine would have reached its peak, employment in Sheridan would be 11,260 workers, or 1,409 workers above baseline employment of 9,851 workers. In the greater Sheridan area, employment would be 3,337 workers, or 512 workers above baseline employment of 2,825 workers. Labor income in 2000 in the city of Sheridan would be \$163.9 million, or \$28.2 million above baseline labor income of \$135.7 million. In the greater Sheridan area, total labor income



TABLE 8.7.3.2-1

Consol Level 1 Scenario Impact  
Population  
Sheridan County Allocation Areas

Year	Sheridan County	Sheridan City	Greater Sheridan Area	Ranchester- Dayton Area	Rest of County
1980	0	0	0	0	0
1981	0	0	0	0	0
1982	0	0	0	0	0
1983	0	0	0	0	0
1984	0	0	0	0	0
1985	27	17	9	2	0
1986	1,368	836	419	11	0
1987	2,725	1,649	839	220	19
1988	2,296	1,567	721	202	7
1989	2,714	1,628	835	229	23
1990	2,667	1,586	836	228	17
1991	2,682	1,592	843	230	18
1992	2,661	1,573	843	230	15
1993	2,659	1,567	846	232	15
1994	2,683	1,581	854	235	10
1995	2,640	1,549	847	233	12
1996	2,565	1,490	836	232	6
1997	2,543	1,480	829	230	5
1998	2,556	1,487	834	233	5
1999	1,716	1,003	558	155	0
2000	1,527	861	528	152	-12
2005	-129	-72	-44	-12	-1
2010	-88	-49	-30	-8	-1
2015	-28	-15	-10	-2	-1

Source: Mountain West Research-North, Inc.,

Note: Details may not sum due to rounding.

TABLE 8.7.3.2-2

Consol Level 2 Scenario Impact  
Population  
Sheridan County Allocation Areas

Year	Sheridan County	Sheridan City	Greater Sheridan Area	Ranchester- Dayton Area	Rest of County
1980	0	0	0	0	0
1981	0	0	0	0	0
1982	0	0	0	0	0
1983	0	0	0	0	0
1984	0	0	0	0	0
1985	27	17	9	2	0
1986	1,368	836	419	111	0
1987	2,725	1,649	839	220	19
1988	2,296	1,367	721	202	7
1989	2,714	1,628	835	229	23
1990	2,667	1,586	836	228	17
1991	2,682	1,592	843	230	18
1992	2,661	1,573	843	230	15
1993	2,659	1,567	846	232	15
1994	2,683	1,581	854	235	15
1995	2,640	1,549	847	233	12
1996	2,724	1,607	863	235	18
1997	3,134	1,891	968	255	21
1998	4,136	2,507	1,273	332	24
1999	4,211	2,537	1,281	344	50
2000	4,160	2,492	1,277	346	46
2005	4,164	2,494	1,278	346	46
2010	4,221	2,528	1,295	351	47
2015	1,993	1,193	611	165	24

Source: Mountain West Research-North, Inc.,

Note: Details may not sum due to rounding.

in the year 2000 would be \$80.9 million, or \$12.8 million above baseline labor income of \$68.1 million. (See Appendix B for illustration of these tables.)

### 8.7.3.3 Social Life and Cultural Diversity

As shown in Section 8.7.3.2, the city of Sheridan and surrounding area (hereafter called Sheridan) will experience two periods of impact from the Consol Level 1 project: (1) mine construction and the initial operating period scheduled for the late-1980s, and (2) the closing of the mine at the end of the century. Between these two transitional periods, the population effects of the project are forecast to be of moderate size (approximately 2,400 persons, or 10 percent over the baseline population) and nearly stable. By the end of the forecast period all population and employment effects of the Consol Level 1 activities will have ceased. With Consol Level 2, a second construction period results in a population and employment surge in the late 1990s (increasing population and employment levels), delays the onset of the phase-out period, and increases the dominance of mining for the Sheridan area.

As discussed in Section 8.7.2.2, the additional population due to the project will build upon the trends established during the 1970s and continued by the baseline population and employment growth. During the forecast period, the community of Sheridan will have the benefit of its experience with growth during the 1970s. Community leaders and residents alike can therefore be expected to be better prepared for, less surprised by, and therefore less anxious about the changes occurring during the forecast period. Because the incremental population due to the project is limited to about 10 percent of the baseline population, it should not pose a particular problem for decision-makers, especially if adequate communication between the company and the community takes place.

It is anticipated that the downturn in employment and population during the phase-out period of the project will cause the community more problems than will the growth period. The loss of a major component of the local economy -- particularly one which is a basic industry and which therefore has created many additional jobs which will also be lost -- is a shock to any community. Ramifications of the closure will be felt throughout the economy, and, because of the extent to which local residents will have participated in these jobs, throughout the population as well. These effects can be somewhat minimized if the phase-out period is anticipated and scheduled. It would be substantially delayed, though of greater magnitude, under the Level 2 scenario. Other changes in economic structure and governmental activities and services are addressed elsewhere in the chapter and are not repeated here.

The changes that are expected to occur in social organization as a consequence of the project -- over and above those due to baseline growth -- are expected to be significant as exaggerations of baseline trends. Once the process of change due to mine development, as described in Chapters 3 and 4, have been set in motion, the incremental effects of the additional mine will be primarily differences in the degree rather than in the kinds of changes that would occur as the mines encourage the area to become more cosmopolitan and rapidly changing.

Over the forecast period, the process of informally dividing the community into multiple social groupings will continue with the influx of mine construction workers and miners who will surely be a distinguishable group. Based on previous reactions, the issue of union membership may come to play an increasing role in the formation of these informal groupings. It should be noted, however, that this factor will also be strongly, if not predominately, determined by the interaction patterns established by the miners and other workers associated with the baseline mines.

The magnitude of mining in the economy of the area with the addition of the proposed project may actually reduce the diversity of the economic base of the region, as the economy becomes further dominated by the mining sector. It is expected, however, that other forces such as tourism and regional trade, as well

as the changing age structure and an increasing emphasis by community leaders on economic diversification, will provide some countervailing pressure, reducing this potentially adverse effect.

The new social diversity and the increased economic activities of the area will cause the political procedures and structures of the community to undergo further adjustment along the lines suggested in Chapter 4. As the new coal mine is added to area economic activities, the influential position of mining interests will be further enhanced as their dominance in employment, financial resources, and extra-local linkages increases and as their linkages within the community become more firmly established. This in turn is likely to promote a counter response by the nonmining interests in the community. As a result, decision-making will become more complex and formalized, though the change over baseline conditions will probably not be marked. In sum, it is expected that the process of increased diversity/complexity that was initiated by the coal development activities of the 1970s will be continued and enhanced, but that no major new trends will be introduced by the project.

The project will similarly accelerate the process of opening and widening the distribution of community resources and power that was also initiated during the 1970s. As the incoming population becomes established in and familiar with the community, they are likely to make demands for access to resources, particularly positions of power. The increasing numbers of corporate executives and managers who are established members of the community is expected to accelerate this process. In the near term, it is anticipated that positions of power will be attained by newcomers most frequently by appointment or participation on voluntary committees and organizations. Over the longer term, especially as the proportion of newcomers in the population increases, elected positions are likely to become more accessible to a wider variety of community residents. These changes are expected to occur under baseline conditions; the effect of the project will be to accelerate and intensify them. Although the status system has already begun to change -- with the declining importance of ranching and the significant generational transition that is occurring (as the "pioneers" die out) -- the strength of the old system and its continuing appeal to many of the newcomers will make the transition slow and gradual. It is not possible to state in advance what new patterns of status criteria will emerge, but it is likely that they will be somewhat more similar to national norms than they are now.

As discussed in chapters 3 and 4, Sheridan has always cultivated effective outside linkages. Consequently, the project, which will tend to increase the opportunities and importance of outside linkages, will have little important effect on the community in this regard.

Similarly, the process by which the interaction and communication patterns in the community will be disaggregated into clusters, rather than integrated into a single unit, will continue. As discussed in chapters 3 and 4, the integration of community residents will take place to a greater and greater extent through this more diffuse process as community size and diversity make it impossible for residents to be personally familiar with one another. Consequently, the type of community integration and affiliation experienced in the earlier days of Sheridan are not expected to be reestablished over the forecast period, under either baseline or with-project conditions. The change will be more marked with Consol Level 2, as a result of its larger population and employment effects.

As a consequence, the coordination of community resources and initiation of new programs are likely to become more complex and difficult, placing new demands upon leaders and followers alike. At this point, it does not appear likely that severe difficulties will be encountered in managing conflict, although it will probably become more difficult to gain active collaboration on a community-wide basis.

Sheridan has already gone past the point that there is much chance that things will return to "be like they were in the old days". The community has already changed. Most of the growth that has occurred has been seen as beneficial. Additional growth is generally viewed as good for the community. Once a community has gone past the point where the past is irrecoverable -- as in the transition from a shared history



to a community of persons with diverse backgrounds -- fewer and fewer of the new changes are considered to be of great importance. This is Sheridan's present position.

It is anticipated that Sheridan will continue to be seen as a good place to live, with a good quality of life, good recreational opportunities, and pleasant people over the course of the forecast period. Nevertheless, longtime residents are likely to regret the loss of the old-time sense of community and the increasing urban characteristics such as higher crime rates, less sense of personal security and familiarity, and diminished importance of agricultural values.

Sheridan has always been an elite community; the presence of those with wealth and status -- and the importance given to these characteristics -- has been one of its more noteworthy characteristics. The infusion of new population, including the new mine-related workers, will gradually erode this elitism. Those who have lived in Sheridan for a very long time -- who have graduated from high school there -- are likely to regret the changes that will occur during the next twenty years. These feelings will not be fully shared by the more recent arrivals, but it is likely that even many of them, attracted as they were by these very attributes, will feel some loss as they compare the community at the end of the forecast period with the way it was when they first came. If the growth in population and employment proceeds as forecast, it is likely that Sheridan will become increasingly similar to national norms, and will lose some of its distinctive character.

#### 8.7.3.4 Housing

As shown in Table 8.7.3.4-1, the housing demand impacts of the Consol Level 1 Mine in the city of Sheridan would begin in 1986 and end in 2000. During this period, approximately 600 to 800 additional housing units would be needed each year by the direct and indirect population associated with the Consol Level 1 Mine. Similarly, about 200 to 300 additional units would be needed each year in the greater Sheridan area during the same time period. As shown in Table 8.7.3.4-2, under the Consol Level 2 scenario, the additional units needed in Sheridan would grow from the 800 unit level to over 1,200 units in 2010. In the greater Sheridan area, the additional units needed after 1995 would rise from the 300 unit level to about 440 units in 2010.

#### 8.7.3.5 Facilities and Services

The facilities and services requirements for Consol Level 1, although requiring a somewhat different schedule and scale, are similar to those projected for the baseline (see Appendix C).

The Consol Level 2 scenario projects a peak increment of 14 percent population increase over the baseline case around the year 2000. Because the public services in Sheridan have been planned to serve a much larger population than currently exists, this incremental population is not projected to create any requirement for capital development of public services. Most increases in facility demands will be associated with housing development in which the costs of extending services is borne by the developer/homeowner.

#### 8.7.3.6 Fiscal

The accelerated schedule and larger sizing of projected capital facilities for the Consol Level 1 Mine results in a negative fiscal impact, which reaches a peak of (cumulative) negative \$3.1 million by 2000, based on the budget assumptions laid out in Chapter 2. Beyond 2000, however, the negative impact is reduced by approximately \$1 million, due to capital facility requirements in the baseline scenario. (See Appendix C.)



TABLE 8.7.3.4-1

Consol Level 1 Scenario  
Housing Demand Impacts  
Sheridan County Allocation Areas  
(Housing Units)

Year	Sheridan County	Sheridan City	Greater Sheridan Area	Ranchester- Dayton Area	Rest of County
1980	0	0	0	0	0
1981	0	0	0	0	0
1982	0	0	0	0	0
1983	0	0	0	0	0
1984	0	0	0	0	0
1985	9	7	2	0	0
1986	506	344	121	39	2
1987	1,021	689	245	79	10
1988	899	604	216	74	4
1989	1,072	725	252	84	11
1990	1,072	721	257	85	8
1991	1,097	736	264	87	9
1992	1,109	742	268	89	9
1993	1,125	752	273	91	9
1994	1,148	767	279	93	9
1995	1,149	766	279	94	7
1996	1,137	753	283	96	5
1997	1,147	761	285	96	6
1998	1,169	776	290	97	7
1999	904	601	223	75	4
2000	843	551	218	75	-1
2005	-71	-46	-18	-6	-1
2010	-48	-31	-12	-4	-1
2015	-15	-9	-4	-1	-1

Source: Mountain West Research-North, Inc., 1982.

Note: Details may not sum due to rounding.

TABLE 8.7.3.4-2

Consol Level 2 Scenario  
Housing Demand Impacts  
Sheridan County Allocation Areas  
(Housing Units)

Year	Sheridan County	Sheridan City	Greater Sheridan Area	Ranchester- Dayton Area	Rest of County
1980	0	0	0	0	0
1981	0	0	0	0	0
1982	0	0	0	0	0
1983	0	0	0	0	0
1984	0	0	0	0	0
1985	9	7	2	1	2
1986	506	344	121	39	10
1987	1,021	689	245	79	4
1988	899	604	216	74	11
1989	1,072	725	252	84	8
1990	1,072	721	257	85	9
1991	1,097	736	264	87	9
1992	1,109	742	274	89	9
1993	1,125	752	273	91	9
1994	1,148	767	279	93	9
1995	1,149	766	281	94	7
1996	1,199	802	290	97	10
1997	1,364	922	325	105	13
1998	1,760	1,193	419	134	13
1999	1,840	1,248	428	140	25
2000	1,848	1,248	434	142	23
2005	1,849	1,249	434	142	24
2010	1,875	1,266	440	144	25
2015	885	597	207	67	14

Source: Mountain West Research-North, Inc., 1982.

Note: Details may not sum due to rounding.

Because of the larger population associated with Consol Level 2, the impacts from this alternative are greater. By 2000, as a result of increased demand for capital facilities and higher O & M demands, the negative cumulative impact is forecast to be \$7.9 million. By 2005, utilizing the assumptions discussed in Chapter 2, Consol Level 2 would cause a cumulative deficit \$5.5 million greater than that forecast under baseline conditions. These forecasts indicate the need for the city to carefully reexamine its capital improvement requirements and take care not to undertake improvements whose operation and maintenance costs could not be financed. Care should also be taken not to bond itself until growth is certain. (See Appendix C.)

#### 8.7.4 Ranchester, Dayton, and Area

##### 8.7.4.1 Introduction

This section presents the Consol Mine impact forecasts for Ranchester, Dayton, and the surrounding area. Section 8.7.4.2 presents the population and economic impact forecasts. Section 8.7.4.3 discusses social life in the Ranchester-Dayton area under the Consol scenario. The housing impact forecasts are presented in Section 8.7.4.4. Facilities/services and fiscal forecasts are discussed in sections 8.7.4.5 and 8.7.4.6, respectively.

##### 8.7.4.2 Population and Economy

As shown in Table 8.7.3.2-1, population effects in the Ranchester-Dayton area under the Consol Level 1 scenario would increase from 2 people in 1985 to about 230 (about 10 percent of the total population) people for most of the operations period. The population impact would decrease to 152 people by 2000. As shown in Table 8.7.3.2-2, Consol Level 2 population effects would increase from 233 people in 1995 to 351 people (about 14 percent of the total population) in 2010 and then decrease to 165 people in 2015.

In 1990, when the Consol Level 1 Mine would have reached full operations employment, employment in the Ranchester-Dayton area would be 1,065 workers, or 105 workers above baseline employment of 960 workers. Labor income of \$16.4 million for the year 1990 would be \$2.5 million above baseline labor income of \$13.9 million. (See Appendix B.)

In 2000, when the Consol Level 2 Mine would have reached full operations employment, employment in the Ranchester-Dayton area would be 1,137 workers, or 88 workers above baseline employment of 1,049 workers. Labor income of \$17.7 million in 2000 would be \$2.8 million above baseline labor income of \$14.9 million.

##### 8.7.4.3 Social Life and Cultural Diversity

As was discussed in Section 8.7.4.2, the Ranchester-Dayton area will experience two periods of transition in population due to the Consol Level 1 project. The first will occur in the mid-1980s, when mine construction and operations are initiated, after which the population effects due to the project will remain nearly constant until the second transition occurs during phase-out during the last years of the century. The direct population and employment effects of the Consol Level 1 Mine on the two communities are forecast to be small -- a maximum of just over 230 persons divided between the two communities. For the Consol Level 2 forecasts, direct population effects are expected to be higher and to remain at elevated levels to the end of the forecast period. Since both Ranchester and Dayton have had extensive experience with the effects of change due to surface mining from the mid-1970s to the present, it is not anticipated that this degree of population and employment change will have major effects on the two communities. Long-term baseline changes will be more important than those introduced by the new mine. The net effect

of the Consol Mine on these two communities (at both levels) will be to accelerate and enhance the trends initiated during the 1970s. The new mine is not likely to be sufficient to initiate significant new trends in social organization or perception of community.

Both communities have felt themselves adversely affected by the regional consequences of the slowdown in mining that occurred during the early 1980s. Residents generally appear to favor moderate growth in their community; the incremental effects projected for the project would fall within the range considered desirable by residents though the levels anticipated in the life of mine forecasts (Level 2) may approach this limit. The experience of the early 1980s and observations about the uneven history of coal resource communities have led residents in both Ranchester and Dayton to favor the development of alternative basic industries and employment and to reduce their dependence upon coal-related activities. For this reason, they may be reluctant to have the community grow to the extent forecast for Consol Level 2 with coal as the principal basis for the expansion. Throughout the forecast period, the project activities are not expected to alter the essential character of the two communities -- they will remain essentially small, rural communities with strong ties to Sheridan. Aside from the changes in income, employment, housing, and public facilities/services noted in other sections, the anticipated effects of the project on social well-being indicators is expected to be slight, within the margin of error of the baseline estimates, and dependent to a great (and unforeseeable extent) upon the specific nature of the in-migrants. With the growth forecast for Consol Level 2, residents are expected to continue to be concerned about increased crime and a decreased sense of trust and personal safety. Since these population levels are not forecast to be reached until the turn of the century, it is difficult to anticipate the actual patterns of behavioral response that will occur.

#### 8.7.4.4 Housing

As shown in Table 8.7.3.4-1, the housing demand impacts of the Consol Level 1 Mine in the Ranchester-Dayton area would begin in 1986 and end in 2000. During this period, approximately 40 to 80 additional housing units would be needed by the direct and indirect population associated with the Consol Level 1 Mine. As shown in Table 8.7.3.4-2, under the Consol Level 2 scenario, the additional units needed in the Ranchester-Dayton area would grow from the 95 unit level in 1995 to about 144 additional units in 2010. As noted in Section 7.7.2.3, the additional demand under both Consol Levels 1 and 2 is not within the current capacity of local builders.

#### 8.7.4.5 Facilities and Services

The facilities and services requirements for Consol Level 1, although projected at a higher level are similar to those projected for the baseline scenario for both Ranchester and Dayton (see Appendix C).

Although the growth rate hovers around 18 to 19 percent above the baseline projections for the Consol Level 2 scenario, Ranchester is still anticipated to adequately accommodate the additional 130 plus dwelling units. Most of the costs for growth will be associated with housing development where the cost of extending services is borne by the eventual developer/homeowner. Increased operations and maintenance costs are reflected in the fiscal projections for this scenario.

Assuming that Dayton improves both its town hall and sewer system, both of which currently in planning stages, the public facilities would be able to accommodate the projected growth. The increased maintenance costs are reflected in the fiscal projections.

#### 8.7.4.6 Fiscal

Due to the larger sizing of facility capital requirements, the Consol Level 1 scenario has a slight negative fiscal impact. By 2005, the cumulative negative fiscal impact would be less than \$100,000 for both towns. (Chapter 4 and Appendix C provide a discussion of the cause of these deficits and more specific details of their origin.)

Under Consol Level 2 the cumulative negative fiscal impact would reach approximately \$150,000 in Ranchester and \$175,000 in Dayton by 2005. (see Chapter 4 and Appendix C).

#### 8.7.5 Rest of County

##### 8.7.5.1 Introduction

This section presents the Consol Mine impact forecasts for the rest of Sheridan County. Section 8.7.5.2 presents the population and economic impact forecasts for the area. Because the Consol Mine would not have significant population impacts in the area, detailed housing, facilities/services, and fiscal forecasts are not presented here.

##### 8.7.5.2 Population and Economy

As shown in Table 8.7.3.2-1, population impacts in the rest of Sheridan County under the Consol Level 1 scenario would reach a peak of twenty-three people in 1989, but otherwise be no more than eighteen people during the remainder of the forecast period. As shown in Table 8.7.3.2-2, Consol Level 2 scenario population impact in the Ranchester-Dayton area would increase from fifteen people in 1993 to fifty people in 1999 and then decline to twenty-four people by 2015.

In 1990, when the mine would have reached full operations employment, employment in the rest of Sheridan County would be 1,898 workers, or 2 workers above baseline employment of 1,896 workers. Labor income of \$24.6 million for the year 1990 would be \$0.1 million or about \$100,000 above baseline labor income of \$24.5 million. (See Appendix B.)

In 2000, when the Consol Level 2 Mine would have reached full operations employment, employment in the rest of Sheridan County would be 2,007 workers, or 60 workers above baseline employment of 1,947 workers. Labor income of \$26.2 million in the year 2000 would be \$0.9 million or about \$900,000 above baseline labor income of \$25.3 million. (See Appendix B.)

### 8.8 Mitigation and Enhancement Measures

#### 8.8.1 Introduction

Similar to the KME project impacts, the Consol Level 1 and Level 2 scenarios would primarily affect Sheridan County, the city of Sheridan and Sheridan School District No. 2. No significant impacts are forecast to occur in Big Horn County or its constituent communities. However, like the KME project, Consol would have an important enhancement opportunity through the increased employment of local residents -- particularly Native Americans, for whom unemployment continues to be a major problem.



### 8.8.2 Sheridan Area

Using the assumptions embedded in this analysis, the principal impacts of the Consol scenarios would vary from those of KME only in their duration and magnitude. In Sheridan County, the cumulative net negative fiscal balance would be \$3.5 million over the baseline case under Consol Level 1 and \$6.5 million by 2015 under Consol Level 2. If current trends were allowed to persist (the baseline case), these impacts would be experienced in a budget already seriously in the red. However, it is clear that such deficits would neither be tolerated nor sustained. Action will have to be taken, whether or not further coal development takes place. The type of actions recommended include active pursuit of grant funds, continued use of the optional sales tax, and the direction of residential development to incorporated areas (see also Section 7.8.2).

Hospital facility requirements under Consol Level 2 would be increased by about seven beds in 2002 over the baseline case. The caveat stated in Section 7.8.2 regarding the reliability of hospital facility impact forecasts given present trends in medical care is applicable to the Consol scenarios. Monitoring of occupancy rates and a flexible impact management process are the most specific measures that can be recommended at this time.

School District No. 2 is forecast to experience the major share of enrollment increases due to the Consol developments. Baseline requirements for additional elementary, junior high, and high school space would be at least doubled by the Consol Level 2 project. These facility increments and accompanying staff requirements would increase the district's cumulative budget deficit by a projected \$17 million in 2005. This figure underlines the importance of the potential School District No. 2 budget problems under the Consol scenarios. There would be a paramount need to monitor enrollment effects and have a working mitigation management process (with full company participation) as mine development gets underway. The types of mitigation measures that should be considered in response to impacts on the school district are listed in the previously-referenced working paper.

The Consol scenarios would produce cumulative peak housing deficits of approximately 400 units in the Sheridan area by 1987, if (1) local builder/developer capacity remained at its estimated 1982 level of about 500 units, (2) new housing supply did not exceed demand in 1984 and 1985, and (3) a construction camp for single-status workers was not used. These are clearly very conservative assumptions. However, should they obtain, appropriate mitigation alternatives to be considered are listed in this report's mitigation working paper.

The Consol scenarios would have marginal impacts on the public infrastructure and services as well as on the municipal budget of Sheridan. Such impacts would be primarily due to infrastructure associated with housing development and thus could be overcome by appropriate fees and charges -- resulting from a "growth shall pay its own way" policy.

The larger sizing of capital facilities to accommodate the Consol-related growth would produce a cumulative, net negative fiscal impact of nearly \$8 million by 2000 (Consol Level 2) for the city of Sheridan budget. However, this figure would decline in subsequent years and would be lower still if the development policies recommended above, in Section 7.8.2 and in the mitigation working paper were adopted. There is, nevertheless, evidence of a potential problem, suggesting that Sheridan should carefully examine and plan its capital improvement requirements.

Somewhat in contrast to the Sheridan case, the Consol scenarios' impacts on the capital facilities and municipal budgets of Ranchester and Dayton would not be significantly different from the baseline case. The development policy recommendations presented in Section 7.8.2 remain applicable.

### 8.8.3 Crow Reservation

For a discussion of mitigation and enhancement measures for the Crow Reservation, see the Socioeconomic Assessment Report (AITS 1983).

9. YOUNGS CREEK MINE: SITE-  
SPECIFIC IMPACT ANALYSIS



## 9. YOUNGS CREEK MINE: SITE-SPECIFIC IMPACT ANALYSIS

### 9.1 Introduction

This chapter presents the impacts forecast for the study region under the Youngs Creek Mine site-specific scenario. As noted in Chapter 5, the Youngs Creek Mine's location on the Crow Indian Reservation is assumed to cause Indian employment at the mine to be composed of all Crow Indians rather than a mix of Crow and Northern Cheyenne. The impact forecasts are presented for the region, its counties, and its communities and jurisdictions, with emphasis placed on the communities and jurisdictions that would be most affected by the Youngs Creek Mine.

For each entity, population, economic, social life and cultural diversity, housing, facilities/ services, and fiscal forecasts are presented. In addition, transportation, outdoor recreation, and land use forecasts are presented on a regional level.

The chapter is organized into six sections. Section 9.2 presents the assumptions used to make the Youngs Creek Mine scenario impact forecasts. Section 9.3 presents the impact forecasts for the region. Section 9.4 presents the impact forecasts for Big Horn County and its communities. The impact forecasts for the Crow and Northern Cheyenne Indian Reservations are presented in sections 9.5 and 9.6, respectively. Section 9.7 presents the impact forecasts for Sheridan County and its communities.

### 9.2 Assumptions

The assumption used to develop the impact forecasts for the site-specific scenario are discussed in chapters 2 and 5, and are not repeated here. In addition, the population and employment forecasts for the Youngs Creek Mine scenario presented in Chapter 6 are utilized throughout this analysis.

### 9.3 Overview of Impacts

#### 9.3.1 Introduction

This section, which is divided into eight subsections, presents an overview of the impacts that are forecast to occur at a regional level under the Youngs Creek Mine scenario. Section 9.3.2 presents the population and economic impact forecasts. Section 9.3.3 discusses the effects of the Youngs Creek Mine social life and cultural diversity. A summary of the housing impacts forecast for the region is presented in Section 9.3.4. Facilities/services and fiscal forecasts are discussed in sections 9.3.5 and 9.3.6, respectively. Section 9.3.7 addresses the impacts of the Youngs Creek scenario on the region's transportation network. Finally, sections 9.3.8 and 9.3.9 present an analysis of outdoor recreation and land use conditions under the Youngs Creek Mine scenario.

#### 9.3.2 Population and Economy

As shown in Table 9.3.2-1, the Youngs Creek Mine's population effects in the study region would begin in 1986 and end between 2010 and 2015. During the 1986 to 1989 construction period, the population impact is forecast to reach a maximum of 1,238 people in 1988, when both construction and operations workers



TABLE 9.3.2-1  
 Youngs Creek Scenario Impact  
 Population  
 Study Region

Year	Total Population	Births	Deaths	Employment- Related Migration	Non-employment Related Migration	Total Change
1980	0	0	0	0	0	0
1981	0	0	0	0	0	0
1982	0	0	0	0	0	0
1983	0	0	0	0	0	0
1984	0	0	0	0	0	0
1985	0	0	0	0	0	0
1986	104	0	0	104	0	104
1987	438	1	0	333	0	334
1988	1238	6	0	794	0	799
1989	891	21	2	-365	-2	-347
1990	1044	17	2	139	-1	153
1991	1116	20	2	56	-2	71
1992	1119	21	2	-12	-2	3
1993	1120	19	2	-13	-2	1
1994	1134	18	3	0	-2	13
1995	1118	17	3	-27	-2	-15
2000	1096	13	4	-9	-3	-4
2005	1082	12	5	-3	-2	0
2010	1099	12	6	1	-2	5
2015	0	0	0	-547	-2	-549

Source: Mountain West Research-North, Inc., 1982.

Notes: Details may not sum due to rounding.

All values except total population represent annual changes.

would be present. During the operations period, which would begin in 1988, the population effects are forecast to reach about 1,100 people by 1991 when the total regional population would reach 43,633 people, and then remain relatively constant through 2010. After 2010, the population impact is forecast to have disappeared by 2015 when the mine would have ceased operations. At its peak, therefore, the population effects of the Youngs Creek Mine would account for about 2.6 percent of the total population of the region.

As shown in Table 9.3.2-2, the total employment effects of the Youngs Creek Mine during the construction period would be 89 workers in 1986, 386 workers in 1987 and 1,016 workers in 1988, when both construction and workers would be present. In 1988, the Youngs Creek Mine would account for 5.2 percent of the total 19,665 workers in the region. Total employment impacts during the operations period are forecast to increase from 723 workers in 1989 to 920 workers in 2010, before declining to 30 workers in 2015, after the mine has closed. As shown in the table, the largest employment increases are forecast to occur in the mining and construction sectors, which in turn stimulate employment impacts in the other sectors. As shown in Table 9.3.2-3, the employment impacts noted above would be about 45 percent basic and 55 percent nonbasic jobs in all of the forecast years.

Table 9.3.2-4 presents the income effects of the Youngs Creek Mine. Total personal income that would accrue to study region residents as a result of the Youngs Creek Mine would peak at \$26 million per year during the construction period and then increase from \$26 million per year to \$28 million per year during the operation period. During the operations period, project-related personal income would constitute approximately 6 percent of total personal income in the region. The project's impact on per capita personal income in 1990 would be to raise it from \$9,103 (baseline) to \$9,499, a difference of \$396. In 2000, the difference between the Youngs Creek scenario and baseline per capita income is forecast to be \$398. In 2015, it is forecast to have fallen to \$51. It should be noted that these figures do not take into account dividend payments from royalties on Crow coal or from a possible Crow severance tax.

### 9.3.3 Social Life and Cultural Diversity

The anticipated effects of the Youngs Creek Mine operations on the social life and cultural diversity of the non-Crow areas of the study region are slight. The proposed mine will bolster the area economy, as discussed in Section 7.3.2, and will generate additional revenues for the state of Montana, for the Crow Tribe, and for the city and county of Sheridan without increasing the population by a large increment. Since coal mining of the nature proposed for the Youngs Creek Mine is already an established activity in the study area, at the levels proposed, its principal effect on the economic, political, or social diversity and complexity of the study region, will be focused on the Crow Tribe and the rural Decker communities. These effects are discussed elsewhere (see AITS 1983 and Section 7.4.4.3 below).

Continuation of coal mining activities in the region should act to maintain or supplement the outside linkages that area governments, businesses, and individuals have established. There is a potential for the project to influence the institutional relationships such as those between the Sheridan area and the Crow Tribe. In the greater Sheridan area, the linkages between industry and government will probably become firmer as a result of the project as both parties gain experience in collaborative planning and response.

The continuation of mining and the significant redistribution of mining level incomes that will result from the project will provide an impetus to alter the local stratification systems, particularly regarding the relationships between anglos and Indians. In addition, the project will enhance the trends initiated during the 1970s, although the effects in terms of change will be subdued since coal mining has had such a long tradition in the region and non-Crow mining employment will be moderate (see discussion in chapters 3

TABLE 9.3.2-2

Youngs Creek Scenario Impact  
Total Employment by Sector  
Study Region

Year	Ag Propri etors	Ag Labor	Min ing	Con struc tion	Manu factu ring	TCPU	Trade	FIRE	Ser vices	Gov ern ment	Other +com.	Total
1980	0	0	0	0	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0	0	0	0	0
1984	0	0	0	0	0	0	0	0	0	0	0	0
1985	0	0	0	0	0	0	0	0	0	0	0	0
1986	0	0	0	53	1	1	9	1	10	10	0	89
1987	0	0	0	232	8	8	39	5	46	46	0	386
1988	0	0	200	373	24	22	108	13	143	131	0	1016
1989	0	0	275	65	21	33	87	10	127	104	0	723
1990	0	0	300	49	26	61	108	11	157	124	0	840
1991	0	0	300	50	27	87	112	12	160	130	0	881
1992	0	0	300	50	27	87	113	12	160	130	0	882
1993	0	0	300	50	28	87	113	12	161	131	0	885
1994	0	0	300	50	28	88	114	12	161	132	0	887
1995	0	0	300	50	28	88	114	12	161	132	0	889
2000	0	0	300	51	28	88	117	13	163	136	0	899
2005	0	0	300	51	29	89	119	13	165	139	0	909
2010	0	0	300	52	29	89	122	13	167	142	0	920
2015	0	0	0	2	2	2	8	1	6	10	0	30

Source: Mountain West Research-North, Inc., 1982.

Note: Details may not sum due to rounding.

TABLE 9.3.2-3  
Youngs Creek Scenario Impact  
Employment by Type  
Study Region

Year	Total	Non Basic	Basic Non	Indirect Basic	Basic Project O&M	Project Construc- tion-Perm	Project Construc- tion-NLoc.
1980	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0
1984	0	0	0	0	0	0	0
1985	0	0	0	0	0	0	0
1986	89	37	51	0	1	33	16
1987	386	163	222	0	7	142	72
1988	1016	472	544	0	19	200	109
1989	723	387	335	16	19	275	8
1990	840	468	371	41	30	300	0
1991	881	485	396	66	30	300	0
1992	882	486	396	66	30	300	0
1993	885	488	396	66	30	300	0
1994	887	490	396	66	30	300	0
1995	889	492	396	66	30	300	0
2000	899	502	396	66	30	300	0
2005	909	512	396	66	30	300	0
2010	920	524	396	66	30	300	0
2015	30	30	0	0	0	0	0

Source: Mountain West Research-North, Inc., 1982.

Notes: Details may not sum due to rounding.

"Basic project O & M" and "Indirect Basic" represent direct and indirect basic coal mining employment, respectively. No mines are assumed to operate in 2015.

TABLE 9.3.2-4

Youngs Creek Scenario Impact  
Personal Income  
Study Region  
(1980 \$000)

Year	Total Labor Income	FICA Payments	Non-labor Income	Residency Adjustment	Total Personal Income	Personal Income Per Capita (1980 \$)
1980	0	0	0	0	0	0
1981	0	0	0	0	0	0
1982	0	0	0	0	0	0
1983	0	0	0	0	0	0
1984	0	0	0	0	0	0
1985	0	0	0	0	0	0
1986	1860	116	298	0	2042	NC
1987	8050	503	1298	0	8844	NC
1988	23702	1515	3874	0	26061	NC
1989	19825	1305	3381	0	21901	NC
1990	24142	1600	4133	0	26674	396
1991	24846	1632	4310	0	27523	NC
1992	24834	1632	4367	0	27569	NC
1993	24901	1635	4434	0	27701	NC
1994	24923	1636	4499	0	27786	NC
1995	24953	1637	4578	0	27894	NC
2000	25079	1643	4958	0	28394	NC
2005	25208	1649	5347	0	28906	NC
2010	25420	1661	5777	0	29536	386
2015	388	25	1144	0	1507	51

Source: Mountain West Research-North, Inc., 1982.

Notes: Details may not sum due to rounding.

The personal and per capita figures do not include Crow dividends from royalties and a possible Crow severance tax.

NC = not calculated.



and 4). The presence of the Youngs Creek Mine is expected to slightly supplement the trend toward greater governmental participation and increasing social and political influence by nonranchers and those with limited (or completely without) familial ties to longtime community elites. Depending upon the state of the national economy, employment stipulations may create additional friction between anglo and Indian job seekers and employers. The extent of conflicts will be greatly influenced by the position and actions taken by those in leadership positions.

The potential for additional mining -- and its realization -- will encourage area residents and their governmental representatives to pursue issues of planning and coordination. Those who are opposed to coal mining and to further growth in the area -- an acknowledged minority -- will dislike the persistence of the trends toward greater governmental control and planning of the 1970s, but most residents of the area will be relieved that the depressed economy of the early 1980s has been revitalized. Those who are pressing for greater emphasis on planning and cooperation between local jurisdictions will appreciate the added impetus provided by the impending population growth and additional development. Project effects on perceptions of and satisfaction with the community are discussed in the county and community sections that follow.

Aside from the changes in material well being that are described in other sections of this chapter (increased employment and income, changes in facilities and services, and housing availability), the incremental change in demographic and social characteristics of the non-Crow community due to the Youngs Creek project are sufficiently small that no effect on the behavioral indicators such as crime and suicide can be forecast with any satisfactory degree of confidence. These indicators are expected to be much more affected by changes in baseline conditions (including national trends) than by the project.

#### 9.3.4 Housing

Under the Youngs Creek scenario, housing deficits which can be attributed to direct and indirect population growth in Big Horn County from the Youngs Creek Mine would be limited to intermittent years between 1988 and 1995 and peak at thirteen housing units. It is highly probable that these deficits could be made up by contractors from Billings who have previously demonstrated their willingness to construct housing in Big Horn County. In addition, it is possible that Crow Indian contractors would be available to construct houses and that local non-Indian construction contractors could expand their capacities. More specific discussion of the effect of the project on housing demand and availability is provided at the county and subcounty level.

#### 9.3.5 Facilities and Services

Because no facilities or services are provided on the regional level, facilities/services impacts are presented below under separate jurisdictional headings.

#### 9.3.6 Fiscal

The revenues that would accrue to the state of Montana and royalty payments to the federal government under the Youngs Creek scenario were described in Section 4.3.6. Other fiscal impact forecasts for counties, cities, and jurisdictions are presented below.

### 9.3.7 Transportation

Transportation impacts from the Youngs Creek Mine would be greatest during the period 1990 to 2013 when production peaks at 8 mmpy and the work force reaches 300. If Tanner Creek is included, the corresponding figures would become 18 mmpy and 683 workers during the period from 1998 to 2013. In addition, construction of a rail spur between the mine and the BN mainline east of Sheridan would affect local land uses along the right of way and carry a peak traffic of 15 unit trains per week each direction, without Tanner Creek, or 34 trains with Tanner Creek. Finally, the proposed construction of a road from Lodge Grass via Youngs Creek to Decker, would importantly alter the pattern of traffic between Lodge Grass and points northwest (Crow Agency, Hardin, Billings) and all of the Decker area mines. The impacts of this road are considered in Section 10.3.7.

#### 9.3.7.1 Rail

The additional rail traffic due to the mine would represent an increase of 20 and 45 percent for the Youngs Creek and Tanner Creek extension, respectively, over present (and baseline forecast) levels of traffic on the BN's Huntley to Sheridan line. The latter increase would represent a increase in at-grade crossing delay time of from 20 to 50 minutes per day, depending upon location.

#### 9.3.7.2 Road

The principal effect of the Youngs Creek Mine on the road network would be an increase in mine worker commuter traffic -- primarily between the mine and Sheridan. The traffic increases on the federal, state and county road network, and their associated impacts, will be determined by the Montana Department of Highways. The impact of the construction of a new road along the Owl Creek drainage is discussed under the cumulative impact scenario (see Section 10.3.7).

The Youngs Creek Mine is forecast to employ a high percentage of Crow Indians. With the Owl Creek road, most of the 180 to 292 (with Tanner Creek) Crow workers would commute to work on this new link. Traffic to the Youngs Creek Mine alone would total 90 to 150 vehicles in each direction, in the absence of any commuter service. At peak, approximately four residents of the Northern Cheyenne Reservation would also be employed. It is assumed that these workers would commute by private vehicle from the reservation and would use FAS 314 as their principal route. Assuming an average of two riders per vehicle, total ADT on FAS 314 would increase by two or 1 to 2 percent at peak over baseline levels. At peak under the Tanner Creek extension scenario, the increase would be 3 percent. Clearly, such levels of increase are not significant.

The new road would also create opportunities for some tourist and other non-Indian traffic. While the level of such traffic cannot be predicted from present information, its possible undesirable side effects, such as increased trespass and littering, should be noted. Given the likely total ADT on the road, some additional law enforcement demands would be created.

### 9.3.8 Outdoor Recreation

The with-project forecast data found in Table 4.3.8-2 show increases in recreation days per activity over baseline forecast data found in Table 4.3.8-1. A comparison of these two tables for the Youngs Creek scenario in Wyoming suggests an approximate 4 percent increase in with-project recreation days per activity over baseline figures for each of the years 1990, 2000, and 2010. By 2015, when the mine has ceased operations, there would be no difference between with-project and baseline populations or recreation days. In Montana, there would be no difference between baseline and with-project forecasts. These in-

creases over baseline are similar to those that would exist under the KME scenario where only slight use effects would be expected. Overuse problems would likely occur at popular and accessible sites due to the uneven distribution of recreationists over available resource areas, over the days of the week, and months of the year. However, as discussed in Section 4.3.8, these problems currently exist on a site-specific basis and are already being addressed by some resource managers. Should a more even distribution of recreationists be achieved either through the choice of the visitors or through the implementation of management strategies, the overall capacity of regional recreation resources is more than adequate to accommodate the increases under this scenario.

### 9.3.9 Land Use

#### 9.3.9.1 On-site Impacts

The Youngs Creek mining project would create primary site disruption on the land where the operations would occur. The permit area presently encompasses 15,772 acres of grassland, which includes about 70 acres of flood plain adjacent to the creek running through the area. Of the 15,772 acres, the alluvial valley lands and an additional 6,767 acres of grassland would be undisturbed throughout the project. The remaining 8,935 acres, also classified as grassland, would be used for mine-related activities and gradually reclaimed over a fifty-five-year period.

Of the proposed projects included in this report, the Youngs Creek operation is forecast to have fewer secondary effects on land use in the two-county region. The with-project urban and rural residential, and commercial land use impacts are outlined below.

#### Big Horn County

Table 4.3.9.2-1 shows that the greatest yearly incremental urban residential acreage needs under the Youngs Creek scenario would be three acres in 1989. In all, the yearly impacts represent less than 1 percent increases over baseline. Similarly, rural residential needs for any year would be less than 1 percent over baseline. Commercial acreage demands, on the other hand, would represent an 8 percent increase over baseline needs for the peak year 2010.

#### Sheridan County

The urban residential forecast for the Youngs Creek scenario could be accommodated by the existing inventory of land in the greater Sheridan area throughout the forecast period (see Table 4.3.9.3-1). Rural residential and commercial acreage needs due to the project show peaks of sixty-six and twelve acres, respectively.

## 9.4 Big Horn County and Communities

### 9.4.1 Introduction

This section presents the Youngs Creek impact forecasts for Big Horn County and its non-reservation subcounty areas. Section 9.4.2 presents the impact forecasts for the county. Section 9.4.3 presents the impact forecasts for Hardin and the Hardin area. Section 9.4.4 presents the forecasts for the Decker/Spring Creek area. Subsequent sections discuss the impact forecasts for the Crow and Northern Cheyenne Indian Reservations. The non-Indian residents of Big Horn County, including those of the Crow and Northern Cheyenne reservations, are considered as part of the county-wide population and economy presented in Section 8.4.2.1.



#### 9.4.2 Big Horn County

##### 9.4.2.1 Population and Economy

As shown in Table 9.4.2.1-1, the Youngs Creek Mine's population effects in Big Horn County would begin in 1986 and end between 2010 and 2015. During the 1986 to 1989 construction period, the population impact is forecast to reach a maximum of 64 people. During the operations period, which would begin in 1988, the population impact is forecast to reach about 30 people by 1989 and then remain relatively constant through 2010. The population impact is then forecast to decline to zero people by 2015 when the mine would have ceased operations.

As shown in Table 9.4.2.1-2, the total employment effect under the Youngs Creek scenario during the construction period would be 40 workers in 1986, 173 workers in 1987 and 470 workers and 331 workers in 1988 and 1989, respectively, when operation of the mine would commence. In 1988, the Youngs Creek Mine would account for 9.1 percent of total county employment. Total employment effects during the operations period would remain constant at 367 workers from 1990 through 2010 (about 5 percent of total employment) and then disappear by 2015. As shown in the table, the largest employment increases are forecast to occur in the mining and construction sectors, which in turn stimulate employment impacts in the other sectors. It should be noted that because most of the new jobs in Big Horn County created by the Youngs Creek Mine are forecast to be held by current Big Horn County residents, the employment impacts discussed here far exceed the population impacts discussed above.

As shown in Table 9.4.2.1-3, the employment impacts noted above would be about evenly divided between basic and nonbasic jobs in all of the forecast years.

Table 9.4.2.1-4 presents the income effects that are forecast to occur under the Youngs Creek scenario. As shown, the total personal income that would accrue to Big Horn County residents as a result of the Youngs Creek Mine would peak at \$14.5 million per year during 1988 at the peak of the construction period, decline slightly, and then increase and stabilize at about \$16.8 million per year during the operations period. The project's impact on per capita personal income in 1990 would be to raise it from \$6,325 (baseline) to \$7,548, a difference of \$1,223. In 2000, the difference between the Youngs Creek scenario and baseline per capita income is forecast to be \$1,196. In 2010, it is forecast to have fallen to \$1, while by 2015 it is \$30 lower than baseline levels since the increase in population is greater than the increase in income.

##### Commercial opportunities

As shown in Table 9.4.2.1-5, the population and income growth due to the Youngs Creek Mine would not be sufficient to increase the forecast of commercial opportunities in Big Horn County, leaving commercial opportunities unchanged over baseline levels.

##### 9.4.2.2 Social Life and Cultural Diversity

In Big Horn County as a whole, the incremental effects of the Youngs Creek Mine (over baseline changes) will be minimal. Most of the impacts will be concentrated within the Crow Reservation and in the Decker-Sheridan area. The major county-wide consequences are likely to result from the change in economic and institutional structure within the Crow Tribe and its consequences for county-tribe and anglo-Indian relationships. Since the great majority of the workers at the mine are expected to reside either on the reservation or in Sheridan County, and to shop primarily in Sheridan or Billings, the project will have only marginal effects on the population size, the demographic characteristics, or the demands or responsibilities of the county government in Big Horn County, particularly with regard to non-Crow residents. If

Table 9.4.2.1 - 1  
 Youngs Creek Scenario Impacts  
 Population  
 Big Horn County

Year	Total Population	Births	Deaths	Employment- Related Migration	Non-employment Related Migration	Total Change
1980	0	0	0	0	0	0
1981	0	0	0	0	0	0
1982	0	0	0	0	0	0
1983	0	0	0	0	0	0
1984	0	0	0	0	0	0
1985	0	0	0	0	0	0
1986	1	0	0	1	0	1
1987	6	0	0	4	0	4
1988	64	0	0	58	0	58
1989	57	1	0	-8	0	-7
1990	24	1	0	-33	0	-32
1991	24	0	0	0	0	0
1992	30	0	0	5	0	5
1993	29	0	0	-1	0	-1
1994	29	0	0	0	0	0
1995	30	0	0	0	0	0
2000	30	0	0	0	0	0
2005	29	0	0	0	0	0
2010	29	0	0	0	0	0
2015	0	0	0	0	0	0

Source: Mountain West Research - North , Inc., 12/30/82  
 Note: Details may not sum due to rounding.



Table 9.4.2.1 - 2  
 Youngs Creek Scenario Impacts  
 Total Employment by Sector  
 Big Horn County

Year	As Proprietors	As Labor	Minings	Con struction	Manu facturing	TCPU	Trade	FIRE	Ser vices	Gov ernment	Other +com.	Total
1980	0	0	0	0	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0	0	0	0	0
1984	0	0	0	0	0	0	0	0	0	0	0	0
1985	0	0	0	0	0	0	0	0	0	0	0	0
1986	0	0	0	29	0	0	1	0	0	2	0	40
1987	0	0	0	126	0	1	6	1	26	11	0	173
1988	0	0	124	204	1	2	13	3	86	34	0	470
1989	0	0	170	37	0	1	8	2	90	29	0	331
1990	0	0	186	30	0	1	8	2	101	36	0	367
1991	0	0	186	30	0	1	8	2	101	36	0	367
1992	0	0	186	30	0	1	8	2	101	36	0	367
1993	0	0	186	30	0	1	8	2	101	36	0	367
1994	0	0	186	30	0	1	8	2	101	36	0	367
1995	0	0	186	30	0	1	8	2	101	36	0	367
2000	0	0	186	30	0	1	8	2	101	36	0	367
2005	0	0	186	30	0	1	8	1	100	35	0	367
2010	0	0	186	30	0	1	8	1	100	35	0	367
2015	0	0	0	0	0	0	0	0	0	0	0	0

Source: Mountain West Research - (North , Inc., 12/30/82

Note: Details may not sum due to rounding.

Table 9.4.2.1 -3  
 Youngs Creek Scenario Impacts  
 Employment by Type  
 Big Horn County

Year	Total	Non Basic	Basic Total	Non Project	Indirect Basic	Basic Project O&M	Project Construc- tion-Ferm	Project Construc- tion-NLoc.
1980	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0
1984	0	0	0	0	0	0	0	0
1985	0	0	0	0	0	0	0	0
1986	40	12	27	0	0	0	26	0
1987	173	55	118	0	0	0	114	3
1988	470	167	302	0	0	124	173	5
1989	331	147	184	0	0	170	12	0
1990	367	181	186	0	0	186	0	0
1991	367	181	186	0	0	186	0	0
1992	367	181	186	0	0	186	0	0
1993	367	181	186	0	0	186	0	0
1994	367	181	186	0	0	186	0	0
1995	367	181	186	0	0	186	0	0
2000	367	181	186	0	0	186	0	0
2005	367	181	186	0	0	186	0	0
2010	367	181	186	0	0	186	0	0
2015	0	0	0	0	0	0	0	0

F

Source: Mountain West Research - North , Inc., 12/30/82

Notes: Details may not sum due to rounding.

"Basic project O & M" and "Indirect Basic" represent direct and indirect basic coal mining employment, respectively. No mines are assumed to operate in 2015.

Table 9.4.2.1 - 4  
 Youriss Creek Scenario Impacts  
 Personal Income  
 Big Horn County  
 (Thousands of 1980 Dollars)

Year	Total Labor Income	FICA Payments	Non-labor Income	Residency Adjustment	Total Personal Income	Personal Income Per Capita (1980 \$)
1980	0	0	0	0	0	0
1981	0	0	0	0	0	0
1982	0	0	0	0	0	0
1983	0	0	0	0	0	0
1984	0	0	0	0	0	0
1985	0	0	0	0	0	0
1986	978	76	153	0	1055	NC
1987	4231	329	661	0	4562	NC
1988	13449	1048	2147	0	14548	NC
1989	12407	967	2021	0	13461	NC
1990	15460	1205	2533	0	16789	1223
1991	15457	1205	2533	0	16786	NC
1992	15458	1205	2533	0	16787	NC
1993	15458	1205	2534	0	16788	NC
1994	15458	1205	2535	0	16788	NC
1995	15461	1205	2536	0	16792	NC
2000	15461	1205	2539	0	16795	1106
2005	15461	1205	2542	0	16798	NC
2010	15461	1205	2542	0	16798	1
2015	15461	1205	2542		16798	-30

Source: Mountain West Research - North , Inc., 12/30/82

Notes: Details may not sum due to rounding.

The personal and per capita income figures do not include Crow dividends from royalties and a possible Crow severance tax

NC means not calculated.

TABLE 9.4.2.1-5

Commercial Opportunities  
 Youngs Creek Scenario  
 Big Horn County, Montana  
 1990

Type of Commercial Opportunity	With Project	Baseline	Impact
<u>Retail</u>			
Gasoline Service Station	22	22	0
Eating and Drinking Place	31	31	0
Grocery and Other Food Store	10	10	0
Motor Vehicle Dealers and Auto Supply Store	9	9	0
Clothing and Shoe Store	8	8	0
Lumber, Hardware, and Mobile Home Dealers	10	10	0
Furniture and Household Appliance Stores	7	7	0
Department Stores	2	2	0
Drug, Variety, General Merchandise Stores	12	12	0
Sporting Goods, Hobby, Flowers, Gift, Sewing Stores	11	11	0
Liquor Store	5	5	0
Jewelry Store	4	4	0
Book Store and Newstands	1	1	0
<u>Service</u>			
Hotels, Motels, Commercial Campgrounds	25	25	0
Beauty and Barber Shops	14	14	0
Auto Repair Shops	14	14	0
Legal, Accounting, Advertising, Data Processing	25	25	0
Engineering, Architecture, Surveying	6	6	0
Equipment and Auto Renting and Leasing	4	4	0
Laundries	5	5	0
Appliance, Furniture, and Shoe Repair	6	6	0
Movie Theatres and Bowling Alleys	4	4	0
Janitorial Services	6	6	0
Photographic Studios	3	3	0
Car Washes	2	2	0
Funeral Services	1	1	0
<u>Finance and Real Estate</u>			
Real Estate Office	12	12	0
Insurance Agencies	6	6	0
Personal Credit Institution	3	3	0
Commercial Bank	3	3	0
Savings and Loan Association	0	0	0
<b>TOTAL</b>	<b>271</b>	<b>271</b>	<b>0</b>

Source: Mountain West Research-North, Inc., 1982.

Note: Forecast population for 1990: 13,609.

further mining enables the county to utilize its revenues or to obtain Coal Board funds to improve facilities or services in the project area, the proposed mine could have a beneficial effect on county integration and coordination. If it does not, the continuing issues of taxation and representation within Big Horn County are likely to become more intense. The outcome will depend to a great extent upon the actions taken by the Crow Tribal Government and by the Crow voters in Big Horn County. (See AITS 1983 for further discussion.)

#### 9.4.2.3 Housing

As shown in Table 9.4.2.3-1, housing deficits under the Youngs Creek scenario in Big Horn County are forecast to occur between 1988 and 1998 and peak at 51 housing units. However, most of this deficit is forecast to occur anyway under the baseline scenario. The housing deficits which can be attributed to the Youngs Creek Mine occur in intermittent years between 1988 and 1996 but peak at 13 units. More detail on the Youngs Creek Mine's impact on housing demand in Big Horn subcounty areas is provided in subsequent sections. The actual housing demand forecasts by type of unit for each area under the Youngs Creek scenario are summarized by type of unit in the tables found in Appendix B. These forecasts do not take into account the effect of increased income on housing demand, which is explained more fully in Section 2.3.3.

#### 9.4.2.4 Facilities and Services

Peak incremental population associated with the Youngs Creek Mine occurs in Big Horn County between 1995 and 2005. The highest projected increments would be 30 new residents during this period. This is an increase over the baseline of 0.2 percent. No new thresholds would be reached during this period. (See Appendix C.)

#### 9.4.2.5 Fiscal

The Youngs Creek Mine would add over \$59 million to Big Horn County's tax base between 1991 and 2010. The population impacts would be negligible during this period, resulting in a projected cumulative surplus of nearly \$28 million in 2005, compared to a projected \$94,000 cumulative deficit under the baseline scenario. (See Table 9.4.2.5-1).

#### 9.4.2.6 Schools -- Facilities/Services and Fiscal

##### Facilities/Services

Under the Youngs Creek scenario, personnel and capital facilities projections are based upon levels of demand associated with student enrollments, which are derived from school-age populations. Tables 4.4.2.6-2 and Appendix D present comparative student enrollments, from which the school requirements are derived.

For the Youngs Creek and baseline scenarios, student enrollments are identical in all public school jurisdictions except elementary school district No. 17H (Hardin and Crow Agency). For the elementary schools in Hardin, the 1995 student enrollments are identical for the two scenarios with 970 students. In 2015, the student enrollment for the baseline scenario is 1,050 students, compared with 1,040 students for the Youngs Creek scenario, a difference of approximately 1 percent. For the elementary school in Crow Agency, the 1995 student enrollments under the Youngs Creek and baseline scenarios would be identical at 280 students. In 2015, the student enrollment for the baseline scenario would be 310 students, compared with 300 students for the Youngs Creek scenario, a difference of approximately 1 percent.



TABLE 9.4.2.3-1

Youngs Creek Scenario Forecast  
Housing Unit Demand/Supply  
Big Horn County

Year	Total Demand	Incremental Demand Over Previous Year	Local Supply Response (Limit = 40)	Cumulative (Deficit) Surplus	Baseline (Deficit) Surplus	(Deficit) Surplus Attributed to Project
1980	2,601					
1981	2,613	12	12	0	0	0
1982	2,604	-9	3	9	9	0
1983	2,616	12	12	0	0	0
1984	2,630	14	14	0	0	0
1985	2,651	21	21	0	0	0
1986	2,676	25	25	0	0	0
1987	2,699	23	23	0	0	0
1988	2,752	53	40	(13)	0	(13)
1989	2,767	15	28	0	0	0
1990	2,845	78	40	(51)	(38)	(13)
1991	2,863	18	40	(19)	(16)	(3)
1992	2,926	63	40	(42)	(39)	(3)
1993	2,956	30	40	(30)	(29)	(1)
1994	2,982	26	40	(16)	(15)	(1)
1995	3,022	40	40	(15)	(15)	0
1996	3,047	25	40	0	(4)	(4)
1997	3,079	32	32	0	0	0
1998	3,122	43	40	(3)	(2)	(1)
1999	3,152	30	33	0	0	0
2000	3,191	39	39	0	0	0
2005	3,303	112 for 5 yrs	112 for 5 yrs	0	0	0
2010	3,482	179 for 5 yrs	179 for 5 yrs	0	0	0
2015	3,653	171 for 5 yrs	171 for 5 yrs	0	0	0

Source: Mountain West Research-North, Inc., 1982.

Note: Includes Big Horn County non-Indian population and Crow population in Hardin.

TABLE 9.4.2.5-1

Fiscal Summary for Youngs Creek Scenario  
Big Horn County  
1982-2015  
(\$000 1982)

FISCAL SUMMARY	1982	1993	1994	1995	1996	1997	1998	1999	1990
REVENUES TOTAL	5483	5663	5577	6222	6771	7411	7842	8609	9422
EXPENDITURES O & M	6055	6190	6249	6319	6396	6454	6544	6600	6720
CAPITAL	3190	376	300	300	300	300	300	386	300
DEBT PAYMENT	970	350	350	350	350	350	350	350	350
TOTAL	10604	6916	6899	6969	7036	7104	7194	7336	7370
FISCAL BALANCE YOUNGS CREEK ALTERNATIVE ANNUAL		-1253	-1322	-747	-265	307	649	1273	2051
CUMULATIVE		-1253	-2575	-3322	-3587	-3280	-2632	-1359	693
FISCAL BALANCE NO ACTION ANNUAL		-1249	-1322	-747	-265	308	361	455	489
CUMULATIVE		-1249	-2571	-3318	-3583	-3274	-2913	-2458	-1970
REVENUES TOTAL	10477	9759	1781	7706	3999	Notes: NF means not forecast. Because of limitations in the size of the computer model used to project population, it was not possible to make annual projections through 2015. Annual projections were made through 2005 and also for the years 2010 and 2015. Therefore, it was not possible to compute cumulative fiscal results for years following 2005. The large net deficits shown in this table result from the methodology used (see Section 2.3.4). In actuality, such deficits would not be allowed to occur-- government officials would either find additional sources of revenue and/or reduce expenditures. Details may not sum due to rounding.			
EXPENDITURES O & M	7080	7405	7784	8059	8144				
CAPITAL	300	300	325	300	300				
DEBT PAYMENT	350								
TOTAL	7730	7705	8109	8359	9444				
FISCAL BALANCE YOUNGS CREEK ALTERNATIVE ANNUAL	2747	2054	-6328	-653	-4455				
CUMULATIVE	1490	27240	27896	NF	NF				
FISCAL BALANCE NO ACTION ANNUAL	670	-23	-2573	-2732	-4447				
CUMULATIVE	1441	3405	94	NF	NF				

Given the insignificant variation in student enrollment between the Youngs Creek and baseline scenarios, the discussion for the baseline scenario (see Section 4.4.2.6) adequately depicts the requirements for personnel and capital facilities applicable to the Youngs Creek scenario.

## Fiscal

This section discusses the fiscal conditions of the county school districts for the Youngs Creek scenario. As discussed above, Big Horn County would receive little population impact from the mine and change in enrollment for each district would be minimal or nonexistent. For this reason, the fiscal conditions of the districts in this scenario are identical to the conditions for the baseline scenario, except as noted below. (See Section 4.4.2.6.)

A key component of the county school finance conditions is the state school equalization program. As presented in Section 3.3.2.6, the state school foundation program is the basis of the revenue generation for school districts in Montana. Big Horn County has been a net contributor to the state foundation program in the past. It is anticipated that the county will continue to produce surplus funds to the state throughout the forecast period. Table 9.4.2.6-1 presents the forecast net contribution to the state program from both the high school and elementary districts' mandatory levies. The surplus in foundation money produced by the county is expected to increase from \$1.66 million in 1982 to a maximum of \$6.42 million in 1995. Only after 2010 will the county not be a net contributor to the fund. This change would be caused by a loss of tax base in the county due to the closure of several of the existing coal mines. The increase in the net contribution over the baseline is forecast to increase from \$0 in 1982 to a peak of \$2.38 million from 1995 through 2010 and then decrease to \$4,000 in 2015.

### 9.4.3 Hardin and Hardin Area

#### 9.4.3.1 Introduction

This section presents the Youngs Creek impact forecasts for Hardin and the Hardin area. Section 9.4.3.2 presents the population and economic forecasts for each area. Section 9.4.3.3 discusses social life in Hardin and the Hardin area under the Youngs Creek scenario. The housing impact forecasts are presented in Section 9.4.3.4. Finally, facilities/services and fiscal impact forecasts are presented in sections 9.4.3.5 and 9.4.3.6, respectively.

#### 9.4.3.2 Population and Economy

As shown in Table 9.4.3.2-1, population effects in Hardin under the Youngs Creek scenario would begin in 1988 at the peak of the construction period and at the beginning of the operations period. During 1988 and 1989 the impact would be twenty-eight people. It would then decrease to the eleven to thirteen person level through 2010 before declining to zero people by 2005. The population impacts in the Hardin north area would follow a similar pattern, but be between three and four people during most of the forecast period.

Because all operations employment at the Youngs Creek Mine is expected to be local workers primarily from Sheridan County and the Crow Reservation, the mine would not have any noticeable impact on non-Indian employment and income in Hardin and the Hardin north area or on Crow Indian population, employment, or income in Hardin.

TABLE 9.4.2.6-1

Net Contribution to State School Foundation Program  
 Youngs Creek Scenario  
 Big Horn County  
 1982-2015  
 (1982 \$000)

Year	Elementary			High School			Total Surplus	Net Change Over Baseline
	Revenue	Expend- itures	Net Surplus	Revenue	Expend- itures	Net Surplus		
1982	3,095	2,139	956	1,857	1,152	705	1,661	0
1983	3,028	2,151	877	1,817	1,094	723	1,600	0
1984	2,958	2,184	774	1,775	1,023	752	1,526	0
1985	3,406	2,247	1,159	2,043	995	1,048	2,207	0
1986	3,786	2,256	1,530	2,272	1,004	1,268	2,798	0
1987	4,231	2,294	1,937	2,539	1,020	1,519	3,456	0
1988	4,525	2,331	2,194	2,715	1,035	1,680	3,874	357
1989	5,062	2,393	2,669	3,037	1,012	2,025	4,694	955
1990	5,622	2,447	3,175	3,373	1,013	2,360	5,535	1,794
1995	6,316	2,497	3,819	3,790	1,189	2,601	6,420	2,383
2000	5,751	2,403	3,348	3,450	1,221	2,229	5,572	2,377
2005	4,159	2,433	1,726	2,495	1,176	1,319	3,045	2,382
2010	4,180	2,537	1,643	2,508	1,152	1,356	2,999	2,389
2015	1,516	2,723	-1,207	910	1,235	-325	-1,532	4

Source: Mountain West Research-North, Inc., 1983.

TABLE 9.4.3.2-1

Youngs Creek Scenario Impact  
Population  
Big Horn County Allocation Areas

Year	City of Hardin (non-Indian)	Hardin Area	Decker/Spring Creek Area
1980	0	0	0
1981	0	0	0
1982	0	0	0
1983	0	0	0
1984	0	0	0
1985	0	0	0
1986	0	0	1
1987	0	0	6
1988	28	9	14
1989	28	9	5
1990	11	3	4
1991	11	3	4
1992	14	4	5
1993	13	3	5
1994	13	4	5
1995	13	4	5
1996	13	4	5
1997	13	3	5
1998	13	3	5
1999	13	3	6
2000	13	3	6
2005	13	3	6
2010	13	3	6
2015	0	0	0

Source: Mountain West Research-North, Inc.,



#### 9.4.3.3 Social Life and Cultural Diversity

The population effects of the Youngs Creek Mine on the Hardin area are expected to be minimal, but there is a potential for considerable alteration in the intercultural relationships. Since the county seat is located in Hardin, which serves as the administrative and commercial hub for the county, city residents would be affected by these changes. Any effects from the proposed mine would be interwoven with the issues facing Hardin due to baseline conditions. It is possible that project-related effects on the Crow will be sufficient to trigger significant change in the relationships between institutions as well as individuals. Residents of the Hardin area generally appreciate the potential for change in social organization in response to change in the economic, political, and social characteristics of the Crow and their government. At this time it is not possible to specify the outcome of such change.

#### 9.4.3.4 Housing

As shown in Table 9.4.3.4-1, the incremental housing demand effects of the Youngs Creek Mine in Hardin would begin in 1988 at twelve additional units and then decline to seven additional units in 2010. The housing demand impacts in the Hardin area would be present in the same years, but be limited to a peak of three additional units. As noted in Section 9.3.4, because of aggregate county demand, local builders probably would not be able to meet this additional housing demand at their current capacities. As noted previously, these forecasts do not take into account changes in demand due to increased income or employment, as discussed in Chapter 2.

#### 9.4.3.5 Facilities and Services

The modest incremental increase in population projected for Hardin in the Youngs Creek alternative would not create noticeable effects on Hardin's facilities and services that differ from the baseline case. (See Appendix C.)

#### 9.4.3.6 Fiscal

The fiscal projections for Hardin under the Youngs Creek scenario are identical to those for the baseline case. (See Table 9.4.3.6-1.)

### 9.4.4 Decker Area

#### 9.4.4.1 Introduction

This section presents the Youngs Creek Mine impact forecasts for the Decker area. Section 9.4.4.2 presents the population and economic impact forecasts for the area. Section 9.4.4.3 discusses social life under the Youngs Creek Mine scenario in the Decker area. The housing impact forecasts are presented in Section 9.4.4.4. Facilities/services and fiscal impact forecasts for the Decker area have been covered within the county level discussion of school districts (see Section 9.4.2.6) and are not discussed here.

#### 9.4.4.2 Population and Economy

As shown in Table 9.4.3.2-1, population effects in the Decker/Spring Creek area would reach a peak of 14 people in 1986 during the Youngs Creek construction period and then remain between 4 and 6 people for the duration of the operations period. In 1990, when operations employment at the Youngs Creek Mine would

TABLE 9.4.3.4-1

Youngs Creek Scenario  
Housing Demand Impacts  
Big Horn County Allocation Areas  
(Housing Units)

Year	City of Hardin (non-Indian)	Hardin Area	Decker/Spring Creek Area
1980	0	0	0
1981	0	0	0
1982	0	0	0
1983	0	0	0
1984	0	0	0
1985	0	0	0
1986	0	0	0
1987	0	0	2
1988	12	3	6
1989	13	3	2
1990	5	1	2
1991	5	1	2
1992	6	1	2
1993	6	1	2
1994	7	1	2
1995	7	1	2
1996	7	1	2
1997	7	1	2
1998	7	1	2
1999	7	1	2
2000	7	1	2
2005	7	1	2
2010	7	1	2
2015	0	0	0

Source: Mountain West Research-North, Inc. 1982.

TABLE 9.4.3.6-1

Fiscal Summary for Youngs Creek Scenario  
Town of Hardin  
1982-2015  
(\$000 1982)

FISCAL SUMMARY	1982	1983	1984	1985	1986	1987	1988	1989	1990
REVENUES TOTAL	878	920	924	932	939	944	956	960	983
EXPENDITURES O & M	1279	1311	1318	1329	1340	1347	1365	1373	1406
CAPITAL	10	38	29	10	10	10	10	41	10
DEBT PAYMENT	49	49	49	49	49	49	49	40	40
TOTAL	1338	1398	1395	1388	1399	1406	1424	1454	1457
FISCAL BALANCE YOUNGS CREEK ALTERNATIVE ANNUAL		-478	-471	-456	-460	-462	-469	-493	-474
CUMULATIVE		-478	-949	-1405	-1865	-2328	-2797	-3290	-3764
FISCAL BALANCE NO ACTION ANNUAL		-475	-470	-456	-460	-463	-465	-491	-472
CUMULATIVE		-475	-945	-1402	-1862	-2324	-2789	-3280	-3752
REVENUES TOTAL	1033	1068	1122	1178	1211	Notes: NF means not forecast. Because of limitations in the size of the computer model used to project population, it was not possible to make annual projections through 2015. Annual projections were made through 2005 and also for the years 2010 and 2015. Therefore, it was not possible to compute cumulative fiscal results for the years following 2005. The large net deficits shown in this table result from the methodology used (see Section 2.3.4). In actuality, such deficits would not be allowed to occur-- government officials would either find additional revenues and/or reduce expenditures. Details may not sum due to rounding.			
EXPENDITURES O & M	1482	1535	1617	1692	1715				
CAPITAL	10	31	22	10	10				
DEBT PAYMENT									
TOTAL	1492	1565	1638	1702	1725				
FISCAL BALANCE YOUNGS CREEK ALTERNATIVE ANNUAL	-459	-498	-517	-524	-514				
CUMULATIVE	-6145	-8541	-11019	NF	NF				
FISCAL BALANCE NO ACTION ANNUAL	-457	-496	-515	-523	-512				
CUMULATIVE	-6125	-8512	-11000	NF	NF				

have reached its peak, Decker area employment would be 216 workers, 14 workers above the baseline level of 202 workers. In this case, it is important to note that employment effects would exceed population impacts because most of the workers would be local. The Decker area's total labor income in 1990 would be \$3.27 million, about \$.30 million or \$300,000 above the baseline labor income of \$2.93 million. (Mountain West Research-North, Inc., 1982.)

#### 9.4.4.3 Social Life and Cultural Diversity

##### Background

As indicated in the baseline discussion, the population forecasts made for the rural areas of southern Big Horn County are tenuous, given their vulnerability to the decisions of individual developers or entrepreneurs. The very small population base of the Decker area makes minor changes in absolute population size of major importance to the social impact discussion. The population projections presented in the previous section indicate that the Decker area would experience very little population effects from the Youngs Creek Mine. Although employment characteristics of the area -- by place of work -- show substantial changes over baseline forecasts, the Decker area communities are well experienced with this type of nonresident work force and are not likely to be greatly affected by its continuation and increase.

Although most area residents regret the disruption of agricultural land under any circumstances, the location of the Youngs Creek Mine on the Crow Reservation will lessen the immediacy of these land changes for most community members.

If a major, planned unit development (such as Spring Creek) or a substantial influx of newcomers into the rural Decker area did occur, or if significant numbers of Crow or other Indians relocated into (or proximate to) the area, new forms and structures would be imposed upon the existing open ranch communities of this area. However, under the forecast, these changes are not expected to occur.

##### Social organization

As in the baseline forecast, the community's recent and prolonged experience with declining population is expected to cease after 1983, and the population is forecast to stabilize between 210 and 240 persons, very slightly above baseline levels. As a result, the characteristics of the community's social organization will probably remain essentially as described in the baseline forecast unless an unforeseen influx of residents occurs. Changes in the stratification system with the construction and operations of the Youngs Creek Mine would be similar to those anticipated under baseline conditions, with the exception that mining and miners, and Indians would acquire a more prominent and economically important position in the region. Existing resentment at high mining wages may be exaggerated. However, aside from heightening area residents' attention to these activities, and possibly stepping up the level of sensitivity to the tensions between mining and ranching, and anglo and Indian, little substantive difference is anticipated between baseline and with-project conditions.

Linkages between community residents and the outside are expected to follow the patterns described in the baseline discussion. As under the baseline, these forecast characteristics are subject to modification should unforeseen changes in residential patterns, regulatory procedures, county governmental leadership, or population characteristics occur. The construction of the new road may increase ties to Billings.

Since integration in the Decker area communities is currently at a low ebb due in part to the important and intense changes that have occurred in the recent past, little further diminution in community cohesion and sense of unity and efficacy is expected. The additional population in the region and the increased traffic through the area might reduce integration slightly as the visual effects of mining and the

nuisances created by greater populations seeking access to rural areas and the mine site create further frustration and alienation among agricultural residents. Economic and political integration do not appear likely to undergo significant change during the forecast period unless newcomers organize to more actively pursue their own interests. In this case, the community is likely to become more explicitly political, with the possibility that separate, competing, stakeholder groups will emerge. Within-group integration might increase under these conditions, but the community would likely be further fragmented.

#### Perceptions of the community

Since residents of the Decker area generally appear to be resigned to future, widespread coal development in their area (see Section 4.4.4.3), it is unlikely that their perceptions will be greatly affected by the presence of the Youngs Creek Mine. Since most agriculturally based residents of the area have not liked the mining that has already occurred, it is unlikely that they will feel more positive about additional strip mining in their vicinity. However, as noted previously, most area residents have resigned themselves to the inevitability of further coal development and are therefore unlikely to be surprised if such development does occur. Residents of the area are likely to experience continuing contradictory feelings regarding the changes that are occurring in the region. Many will feel positive about the continued growth of Sheridan's commercial and service sectors, improved transportation links to Sheridan and Billings, and greater regional prosperity, but many will be distressed by the increased nuisance levels associated with the presence of strangers and nonresidents and by the diminution of the former strong sense of community identity and cohesion.

#### 9.4.4.4 Housing

As shown in Table 9.4.3.4-1, the housing demand effects of the Youngs Creek Mine in the Decker/Spring Creek area would begin in 1987 and end by 2000. Aside from the six additional units that would be needed in 1986, the housing demand effects would be no more than two additional units in any given year. As noted in Section 9.3.4, because of aggregate demand in the area, local builders probably would not be able to meet this additional housing demand at their current capacities.

Under the Youngs Creek scenario, it does not appear that housing demand in the Decker area would be large enough to trigger development of Spring Creek, an approved subdivision described in Section 3.3.4.4. However, if for some reason Spring Creek were developed it would shift some housing demand away from other areas toward Spring Creek and increase the Youngs Creek scenario's demand for housing in the Decker/Spring Creek area.

#### 9.4.4.5 Facilities/Services

There are no local jurisdictional units in the Decker/Spring Creek area. Consequently, no discussion of facilities/services is appropriate for this geographic area. Public elementary and secondary schools are discussed at the county level.

#### 9.4.4.6 Fiscal

There are no local jurisdictional units in the Decker/Spring Creek area. Consequently, no discussion of fiscal conditions is appropriate for this geographic area. Public elementary and secondary schools are discussed at the county level.



## 9.5 Crow Reservation and Communities

### 9.5.1 Introduction

This section discusses the effects of the Youngs Creek Mine on the Crow Indian Reservation and its communities. The section is comprised of four subsections, each of which focuses on a particular geographic area of the reservation. Section 9.5.2 presents population, economic, social life and cultural diversity, housing, facilities/services and fiscal impact forecasts for the reservation as a whole. Sections 9.5.3 and 9.5.4 present the same set of forecasts for Crow Agency and the northeast area and for Lodge Grass and the southeast area, respectively. Because the Youngs Creek Mine is expected to have a less significant impact on the central and west areas, sections 9.5.5 and 9.5.6 discuss the anticipated population and economic impact changes associated with the mine areas, but do not discuss the housing, facilities/services, or fiscal forecasts unless warranted by the magnitude of potential change.

### 9.5.2 Crow Reservation

#### 9.5.2.1 Population and Economy

Because the Youngs Creek Mine would not cause Crow Indian in-migration to the reservation or Hardin, its effects on the Crow population would be limited to employment and income (see Section 4.2.2.1). However, it should be noted that the incidental presence of non-Indians on the reservation due to the increased population in the Decker-Sheridan area and the location of the mines and their employment on or near the reservation are likely to raise the need for tribal response in the areas of law enforcement (trespass, littering, traffic) and fish and wildlife management. These consequences are addressed in the accompanying AITS report (1983). As shown in Table 9.5.2.1-1, which presents projections for the Crow Indians on the reservation and in Hardin in five-year increments, Crow employment effects under the Youngs Creek scenario would begin in 1990 at 352 workers, increase to 390 workers by 2005, and then decline to 385 workers by 2015. As shown, these employment impacts would cause reductions in the unemployment rate during the years in which employment impacts occur. In 1990, when the Youngs Creek Mine would be at full operations employment, the total labor income of Crow Indians in Big Horn County would be \$39.6 million, or about \$15.2 million above the forecast baseline labor income of \$24.4 million in 1990. (Mountain West Research-North, Inc., 1982.)

It should also be noted that these employment and income figures are based on the assumptions delineated in Section 5.4.1 and do not reflect the increased employment and income of Crow tribal members that would result 1) from royalty and severance tax dividend payments from the mines, or 2) if off-reservation mines practiced significant levels of Indian preference in hiring. Also not included are the potential employment benefits that would result from accelerated highway construction funded by the new federal gasoline tax. Realization of these employment opportunities could make the forecasts presented in the report conservative.

#### 9.5.2.2 Social Life and Cultural Diversity

For this discussion, please see the Socioeconomic Assessment Report prepared by the Crow Tribe. (AITS 1983).

#### 9.5.2.3 Housing

Because the Youngs Creek Mine is not forecast to result in any in-migration of Crow Indians to the Crow Reservation, it would not have any housing impact on the Crow Indian population. Although the Youngs

TABLE 9.5.2.1-1

Youngs Creek Scenario Forecast  
Crow Indian Population, Labor Force, and Employment  
Crow Reservation and Hardin

Year	Youngs Creek Scenario and Baseline Scenario				Employment		Unemployment Rate (Percent)	
	Population	Labor Force	Labor Force Participation Rate (Percent)	Youngs Creek Scenario	Baseline Scenario	Impact	Youngs Creek Scenario	Baseline Scenario
1980	5,378	2,089	38.8	1,319	1,319	0	36.9	36.9
1985	5,944	2,419	40.7	1,315	1,315	0	45.6	45.6
1990	6,454	2,675	41.4	1,867	1,515	352	30.2	43.4
1995	6,912	2,993	43.3	2,065	1,713	352	31.0	42.8
2000	7,414	3,239	43.7	2,238	1,885	353	30.9	41.8
2005	7,856	3,499	44.5	2,476	2,086	390	29.2	40.4
2010	8,358	3,657	43.8	2,659	2,274	385	27.3	37.8
2015	9,119	3,847	42.1	2,517	2,517	0	34.6	34.6

Source: Mountain West Research-North, Inc., 1982.

Creek Mine would result in some in-migration of non-Indians to the Crow Reservation, their numbers would be so small as to make the Youngs Creek scenario's housing demand almost indistinguishable from baseline housing demand. Hence, the Youngs Creek scenario's housing impacts for the Crow Reservation are not presented here. The reader who may be interested in the small difference between the Youngs Creek scenario's and baseline demand is referred to the housing demand tables presented in Appendix B.

#### 9.5.2.4 Facilities and Services

Since requirements for personnel, capital facilities, and equipment are forecast primarily from service area populations, the absence of population effects from the Youngs Creek Mine means a corresponding absence of facilities/services effects. Table 4.1-4 and Appendix D illustrate the similarity of the baseline and Youngs Creek populations which determine the requirements for personnel, capital facilities, and equipment. Given this similarity, no effects from the Youngs Creek Mine are anticipated; conditions under the Youngs Creek scenario are forecast as described for the baseline (see Section 4.5.2.5).

#### 9.5.2.5 Fiscal

As discussed in Section 4.5.2.6, many elements of the fiscal analysis are not affected by the presence of the proposed mine: major portions of the tribal expenditures and revenues do not change between the baseline and with-project scenario because they are either constants or are based on population. As described in Section 9.5.2.1, the reservation would experience no population effects from the Youngs Creek Mine. However, the mine would affect revenue and expenditure categories that are based on coal royalties received by the tribe. Under the Youngs Creek scenario, royalty receipts would accrue not only from production at the Absaloka Mine (included in the baseline scenario) but also from the Youngs Creek Mine.<sup>1</sup>

The remainder of this section presents the revenue and expenditure forecasts, along with the forecast net fiscal balance for the tribe for the Youngs Creek scenario.

Revenue forecast. Table 9.5.2.5-1 presents the forecast tribal revenues, by source, for the Youngs Creek scenario. Total tribal revenues are expected to rise from \$6.96 million in 1982 to \$27.82 million by 2015, an increase of 300 percent. The revenues are highly dependent on the coal royalty receipts. Almost all of the increase in tribal revenues over the forecast period are caused by increases in the coal royalties. Coal royalties are expected to increase from \$2.35 million in 1982 to \$23.20 million by 1995 and through 2015, an increase of 887 percent. The royalties and federal contracts and grants would account for 33.7 and 33.8 percent of the revenues, respectively, in 1982 and 62.5 and 19.1 percent of the revenues, respectively, in 2015.

Expenditure forecast. The expenditures will be presented in two forms. The first will be the expenditures that will remain constant or vary only with population across scenarios, and the second will be the expenditures specifically related to coal royalties. The expenditures that are in the first category are presented in Table 9.5.2.5-2. The total nonroyalty expenditures are forecast to increase from \$4.24 million in 1982 to \$4.84 million by 2015, an increase of 14.0 percent. The tribal staff spending is expected to increase from \$464,000 in the 1982 budget to \$740,000 in 2015, an increase of 59.5 percent. Tribal

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<sup>1</sup>Tribal resolution 80-21 states that 60 percent of the royalties must be allocated to dividend payments to the tribal members, 30 percent must go for land purchases, and 10 percent to tribal administration. Current royalty agreements and distribution policies are assumed constant over the entire forecast period due to the absence of clear plans to change. These assumptions are for analytic purposes only and in no way affect the tribe's latitude in future negotiations.

TABLE 9.5.2.5-1

Crow Reservation Tribal Revenues  
 Youngs Creek Scenario  
 1982-2015  
 (1982 \$000)

Year	Interest	Land Leases	Fines	Damage Payments	Coal Royalties <sup>a</sup>	Oil and Gas Leases	Oil and Gas Royalties	Federal Contracts	Revolving Credit	FHA Reserve	Carryover Beginning Balance	Total
1982	119.6	130	.3	.5	2,350	400	150	2,355.7	113.8	231.8	1,112.2	6,964
1983	119.6	130	.3	.5	1,926	400	150	2,355.7	113.8	231.8	1,112.2	6,540
1984	119.6	130	.3	.5	1,926	400	150	2,355.7	113.8	231.8	1,112.2	6,540
1985	119.6	130	.3	.5	1,926	400	150	2,355.7	113.8	231.8	1,112.2	6,540
1986	119.6	130	.3	.5	1,926	400	150	2,355.7	113.8	231.8	1,112.2	6,540
1987	119.6	130	.3	.5	1,926	400	150	2,355.7	113.8	231.8	1,112.2	6,540
1988	119.6	130	.3	.5	6,443	400	150	2,355.7	113.8	231.8	1,112.2	11,057
1989	119.6	130	.3	.5	12,256	400	150	2,355.7	113.8	231.8	1,112.2	16,870
1990	119.6	130	.3	.5	18,924	400	150	2,355.7	113.8	231.8	1,112.2	23,538
1995	119.6	130	.4	.5	23,204	400	150	2,355.7	113.8	231.8	1,112.2	27,818
2000	119.6	130	.4	.5	23,204	400	150	2,355.7	113.8	231.8	1,112.2	27,818
2005	119.6	130	.4	.5	23,204	400	150	2,355.7	113.8	231.8	1,112.2	27,818
2010	119.6	130	.4	.5	23,204	400	150	2,355.7	113.8	231.8	1,112.2	27,818
2015	119.6	130	.5	.5	7,704	400	150	2,355.7	113.8	231.8	1,112.2	12,318

Source: Mountain West Research-North, Inc., 1982.

<sup>a</sup>Tribal resolution 80-21 states that 60 percent of the royalties must be allocated to dividend payments to the tribal members, 30 percent must go for land purchases, and 10 percent to tribal administration. Current royalty agreements and distribution policies are assumed constant over the entire forecast period due to the absence of clear plans to change. These assumptions are for analytic purposes only and in no way affect the tribe's latitude in future negotiations.

TABLE 9.5.2.5-2

Crow Reservation Tribal Expenditures  
All Scenarios  
1982-2015  
(1982 \$000)

Year	Tribal Staff	Attorney Litigation	Tribal Projects	Operating Expenses	Repairs and Utilities	Capital	Welfare and Burials	Education	Crow Land Enterprises	Crow Central Education	Federal Grants	FHA and Credit	Total
1982	464	175	428	85	125	20	108	50	60	24	2,356	346	4,241
1983	474	175	437	85	125	20	110	50	60	24	2,356	346	4,262
1984	483	175	445	85	125	20	112	50	60	24	2,356	346	4,281
1985	492	175	454	85	125	20	115	50	60	24	2,356	346	4,302
1986	501	175	462	85	125	20	117	50	60	24	2,356	346	4,321
1987	510	175	470	85	125	20	119	50	60	24	2,356	346	4,340
1988	518	175	478	85	125	20	121	50	60	24	2,356	346	4,358
1989	527	175	486	85	125	20	123	50	60	24	2,356	346	4,377
1990	534	175	493	85	125	20	124	50	60	24	2,356	346	4,392
1995	572	175	528	85	125	20	133	50	60	24	2,356	346	4,474
2000	614	175	566	85	125	20	143	50	60	24	2,356	346	4,564
2005	654	175	604	85	125	20	152	50	60	24	2,356	346	4,651
2010	690	175	636	85	125	20	160	50	60	24	2,356	346	4,727
2015	740	175	682	85	125	20	172	50	60	24	2,356	346	4,835

Source: Mountain West Research-North, Inc., 1983.



projects are forecast to increase 59.0 percent to \$682,000 in 2015. The attorneys/litigation line item is assumed to remain constant over the forecast period. There is a high likelihood that this item will increase, at least over the short run, due to increased tribal litigation concerning the coal severance tax. The exact amount of the increase is not known; therefore, the litigation spending was assumed to remain constant.

Table 9.5.2.5-3 presents the expenditures that are directly related to coal royalty payments. Sixty percent of the royalties are mandated to be spent on dividend payment and 30 percent on land purchases. The remaining 10 percent of the royalty money goes into the tribal treasury to be spent on administrative functions of the tribe. This 10 percent is not included in the table because there are no identifiable expenditures that are made with those funds. Total identifiable spending based on coal royalties is expected to increase from \$2.24 million in the 1982 budget to \$20.88 million by 1995 and through the remainder of the period. This represents an increase of 834 percent. Dividend payments are expected to increase from the \$1.65 million budgeted in the 1983 budget to \$13.92 million by 1995. The land purchase expenditures are forecast to increase from \$586,000 to \$6.96 million.

Net fiscal balance. Table 9.5.2.5-4 presents the net fiscal balance for the tribe for the Youngs Creek scenario. The tribe will have a positive fiscal balance over the entire forecast period, ranging from a low of \$466,000 in 1987 to a high of \$2.46 million in 1995. A significant portion of the excess money can be attributed to the 10 percent of the coal royalties that are allocated for tribal administration but are not shown as an administration expense.

Capital. The reservation is not forecast to require any additional capital facilities during the forecast period that must be provided by the tribe. The tribe does have an outstanding debt of approximately \$2.40 million that must be serviced during the forecast period.

### 9.5.3 Crow Agency and Northeast Area

#### 9.5.3.1 Introduction

This section presents the Youngs Creek Mine impact forecasts for Crow Agency and the northeast area of the Crow Indian Reservation. The section is divided into five subsections. Section 9.5.3.2 presents the population and economic impact forecasts. Section 9.5.3.3 discusses social life and cultural diversity under the Youngs Creek scenario. Section 9.5.3.4 discusses housing impact forecasts. Finally, sections 9.5.3.5 and 9.5.3.6 describe facilities/services and fiscal impact forecasts, respectively.

#### 9.5.3.2 Population and Economy

Because the Youngs Creek Mine would not cause Crow Indian in-migration to Crow Agency or the northeast area, its impacts on the Crow population would be limited to employment and income. In 1990, when operations employment at the Youngs Creek Mine would have reached its peak, Crow Indian employment in Crow Agency and the northeast reservation would be 701 workers, or 126 workers above the baseline for employment forecast of 575 workers. Labor income under the Youngs Creek scenario in 1990 would be \$15.10 million, or about \$5.5 million above forecast baseline labor income of \$9.55 million. (Mountain West Research-North, Inc., 1982.)

#### 9.5.3.3 Social Life and Cultural Diversity

For this discussion, please see the Socioeconomic Assessment Report prepared by the Crow Tribe (AITS 1983).

TABLE 9.5.2.5-3

Expenditures Based on Crow Reservation  
Tribal Royalty Payments  
Youngs Creek scenario  
1982-2015  
(1982 \$000)

Year	Dividend Payments	Land Purchase	Total
1982	1,649	586	2,235
1983	1,156	578	1,734
1984	1,156	578	1,734
1985	1,156	578	1,734
1986	1,156	578	1,734
1987	1,156	578	1,734
1988	3,866	1,933	5,799
1989	7,354	3,677	11,031
1990	11,354	5,677	17,051
1995	13,922	6,961	20,883
2000	13,922	6,961	20,883
2005	13,922	6,961	20,883
2010	13,922	6,961	20,883
2015	4,622	2,311	6,933

Source: Mountain West Research-North, Inc., 1983.

Note: Tribal resolution 80-21 states that 60 percent of the royalties must be allocated to dividend payments to the tribal members, 30 percent must go for land purchases, and 10 percent to tribal administration. Current royalty agreements and distribution policies are assumed constant over the entire forecast period due to the absence of clear plans to change. These assumptions are for analytic purposes only and in no way affect the tribe's latitude in future negotiations.

TABLE 9.5.2.5-4

Crow Reservation Tribal Net Fiscal Balance  
 Youngs Creek Scenario  
 1982-2015  
 (1982 \$000)

Year	Revenue <sup>a</sup>	Expenditure	Balance
1982	6,964	6,476	488
1983	6,540	5,996	544
1984	6,540	6,015	525
1985	6,540	6,036	504
1986	6,540	6,055	485
1987	6,540	6,074	466
1988	11,057	10,157	900
1989	16,872	15,408	1,464
1990	23,538	21,423	2,115
1995	27,818	25,357	2,461
2000	27,818	25,447	2,371
2005	27,818	25,534	2,284
2010	27,818	25,610	2,208
2015	12,318	11,768	550

Source: Mountain West Research-North, Inc., 1983.

<sup>a</sup>Tribal resolution 80-21 states that 60 percent of the royalties must be allocated to dividend payments to the tribal members, 30 percent must go for land purchases, and 10 percent to tribal administration. Current royalty agreements and distribution policies are assumed constant over the entire forecast period due to the absence of clear plans to change. These assumptions are for analytic purposes only and in no way affect the tribe's latitude in future negotiations.

#### 9.5.3.4 Housing

As discussed in Chapter 2, the Youngs Creek Mine is not forecast to result in any in-migration of Crow Indians to Crow Agency and the northeast area; it would have no housing effects due to growth in the Crow Indian population. Potential income effects on housing demand are discussed in Chapter 2. Although the Youngs Creek Mine would result in some in-migration of non-Indians to the area, their numbers would be so small as to make the Youngs Creek scenario's housing demand almost indistinguishable from the baseline. Detailed housing demand data for Crow Agency and the northeast are not presented here but are included in Appendix B.

#### 9.5.3.5 Facilities and Services

Since requirements for personnel, capital facilities, and equipment are forecast primarily from service area populations, the absence of population effects from the Youngs Creek Mine means a corresponding absence of facilities/services effects. Table 4.1-4 and Appendix D illustrate the similarity of the baseline and Youngs Creek populations which determine the requirements for personnel, capital facilities, and equipment. Given this similarity, no effects from the Youngs Creek Mine are anticipated; conditions under the Youngs Creek scenario are forecast as described for the baseline (see Section 4.5.3.5).

#### 9.5.3.6 Fiscal

The Youngs Creek Mine is forecast to have no effect on the fiscal condition of Crow Agency or the northeast area, lacking as it does any notable population, housing, or revenue effects for this area. Baseline fiscal conditions, described in Section 4.5.3.6, would remain unchanged under the Youngs Creek scenario.

### 9.5.4 Lodge Grass and Southeast Area

#### 9.5.4.1 Introduction

This section presents the Youngs Creek impact forecasts for Lodge Grass and the southeast area of the Crow Indian Reservation. The section is divided into five subsections. Section 9.5.4.2 presents the population and economic impact forecasts. Section 9.5.4.3 discusses social life and cultural diversity under the Youngs Creek scenario. Section 9.5.4.4 discusses housing impact forecasts. Finally, sections 9.5.4.5 and 9.5.4.6 discuss facilities/services and fiscal impact forecasts, respectively.

#### 9.5.4.2 Population and Economy

Because the Youngs Creek Mine would not cause Crow Indian in-migration to Lodge Grass or the southeast area, its impacts on the Crow population would be limited to employment and income. In 1990, when operations employment at the Youngs Creek Mine would have reached its peak, Crow Indian employment in Lodge Grass and the southeast reservation would be 505 workers, or 178 workers above the baseline forecast of 327 workers. Labor income under the Youngs Creek scenario in 1990 would be \$11.7 million, or about \$6.7 million above forecast baseline labor income of \$5 million. (Mountain West Research-North, Inc., 1982.)

#### 9.5.4.3 Social Life and Cultural Diversity

For this discussion, please see the Socioeconomic Assessment Report prepared by the Crow Tribe (AITS 1983).

#### 9.5.4.4 Housing

Because the Youngs Creek Mine is not forecast to result in any in-migration of Crow Indians to Lodge Grass or the southeast, it would have no housing impacts due to growth in the Crow Indian population. Potential income effects on housing demand are discussed in Chapter 2. Although the Youngs Creek Mine would result in some in-migration of non-Indians to the Crow Reservation, their numbers would be so small as to make the Youngs Creek scenario's housing demand almost indistinguishable from baseline housing demand. Hence, the Youngs Creek scenario's housing impacts for Lodge Grass and the southeast area are not presented here but are included in Appendix B.

#### 9.5.4.5 Facilities and Services

Since requirements for personnel, capital facilities, and equipment are forecast primarily from service area populations, the absence of population effects from the Youngs Creek Mine means a corresponding absence of facilities/services effects. Table 4.1-4 and Appendix D illustrate the similarity of the baseline and Youngs Creek populations which determine the requirements for personnel, capital facilities, and equipment. Given this similarity, no effects from the Youngs Creek Mine are anticipated; conditions under the Youngs Creek scenario are forecast as described for the baseline (see Section 4.5.4.6).

#### 9.5.4.6 Fiscal

The Youngs Creek Mine is forecast to have no effect on the fiscal condition of the Lodge Grass or the southeast area, lacking as it does any notable population, housing, or revenue effects for this area. Baseline fiscal conditions, described in Section 4.5.2.5, would remain unchanged under the Youngs Creek scenario.

### 9.5.5 Central Area

#### 9.5.5.1 Introduction

This section presents the Youngs Creek Mine impact forecasts for the central area of the Crow Indian Reservation. Section 9.5.5.2 presents population and economic impact forecasts. Section 9.5.5.3 discusses facilities/services conditions under the Youngs Creek scenario.

#### 9.5.5.2 Population and Economy

Because the Youngs Creek Mine would not cause Crow Indian in-migration to the central area, its impacts on the Crow population would be limited to employment and income. In 1990, when operations employment at the Youngs Creek Mine would have reached its peak, Crow Indian employment in the central part of the reservation would be 113 workers, or 31 workers above forecast baseline employment of 82 workers. Labor income under the Youngs Creek scenario in 1990 would be \$2.51 million, or about \$1.29 million above forecast baseline labor income of \$1.22 million. (Mountain West Research-North, Inc., 1982.)



#### 9.5.5.3 Other Topical Areas of Importance

##### Facilities and services

Since requirements for personnel, capital facilities, and equipment are forecast primarily from service area populations, the absence of population effects from the Youngs Creek Mine means a corresponding absence of facilities/services effects. Table 4.1-1 and Appendix D illustrate the similarity of the baseline and Youngs Creek populations which determine the requirements for personnel, capital facilities, and equipment. Given this similarity, no effects from the Youngs Creek Mine are anticipated; conditions under the Youngs Creek scenario are forecast as described for the baseline (see Section 4.5.5.3).

#### 9.5.6 West Area

##### 9.5.6.1 Introduction

This section presents the Youngs Creek Mine impact forecasts for the west area of the Crow Indian Reservation. Section 9.5.6.2 presents population and economic impact forecasts. Section 9.5.6.3 discusses facilities/services conditions under the Youngs Creek scenario.

##### 9.5.6.2 Population and Economy

Because the Youngs Creek Mine would not cause Crow Indian in-migration to the west area, its impacts to the Crow population would be limited to employment and income. In 1990, when operations employment at the Youngs Creek Mine would have reached its peak, Crow Indian employment in the western part of the reservation would be eighty-nine workers, or eight workers above forecast baseline employment of eighty-one workers. Labor income under the Youngs Creek scenario in 1990 would be \$1.88 million, or about \$650,000 above forecast baseline labor income of \$1.23 million. (Mountain West Research-North, Inc., 1982.)

##### 9.5.6.3 Other Topical Areas of Importance

##### Facilities and services

Since requirements for personnel, capital facilities, and equipment are forecast primarily from service area populations, the absence of population effects from the Youngs Creek Mine means a corresponding absence of facilities/services effects. Table 4.1-1 and Appendix D illustrate the similarity of the baseline and Youngs Creek populations which determine the requirements for personnel, capital facilities, and equipment. Given this similarity, no effects from the Youngs Creek Mine are anticipated; conditions under the Youngs Creek scenario are forecast as described for the baseline (see Section 4.5.6.3).

#### 9.6 Northern Cheyenne Reservation

##### 9.6.1 Introduction

This section presents the Youngs Creek impact forecasts for the Northern Cheyenne Indian Reservation. Section 9.6.2 describes the population and economic impact forecasts for the reservation as a whole, including both Big Horn and Rosebud counties. More detailed population and economic impact forecasts for the Big Horn County portion of the reservation are presented in Appendix B. Because the Youngs Creek Mine would not cause any in-migration to the reservation, detailed housing, social, facilities/services, and fiscal forecasts are not presented here.

### 9.6.2 Employment and Income

Because the Youngs Creek Mine would not cause Northern Cheyenne Indians to in-migrate to the Northern Cheyenne Reservation or employ any Northern Cheyenne, its impact on the reservation would be limited to indirect employment and income. As shown in Table 9.6.2-1, which shows five-year increments, the mine would increase employment among Northern Cheyenne Indians by one worker in 1995. As shown, this employment would not have a noticeable effect on the unemployment rate.

## 9.7 Sheridan County and Communities

### 9.7.1 Introduction

This section presents the Youngs Creek Mine impact forecasts for Sheridan County and its communities. Section 9.7.2 presents the impact forecasts for Sheridan County as a whole. Section 9.7.3 discusses the impact forecasts for the city of Sheridan and the greater Sheridan area. Section 9.7.4 focuses on the impact forecasts for Ranchester, Dayton, and the surrounding area. Finally, Section 9.7.5 presents the impact forecasts for the rest of Sheridan County.

Throughout this section, the level of detail presented is scaled to the magnitude of potential impacts. The sections which focus on Sheridan, Ranchester, Dayton, and the surrounding areas present a full set of population, economic, social life, housing, facilities/service, and fiscal impact forecasts. However, because the level of impact in the rest of Sheridan County (which includes the southern portion of the county) is expected to be less significant, Section 9.7.5 focuses on the population and economic impact forecasts and covers other topical areas of interest only when warranted by the potential level of impact.

### 9.7.2 Sheridan County

#### 9.7.2.1 Population and Economy

As shown in Table 9.7.2.1-1, the Youngs Creek Mine's population effects in Sheridan County would begin in 1986 and end between 2010 and 2015. During the 1986 to 1989 construction period, the population effect is forecast to reach a maximum of 1,174 people or about 4 percent of the total county population. During the operations period, which would begin in 1988, the population effects are forecast to reach about 1,090 people by 1991 and then remain relatively constant through 2010. After the year 2000, the population effects are forecast to decline to zero people by 2015, when the mine would have ceased operations.

As shown in Table 9.7.2.1-2, the total employment effects under the Youngs Creek scenario during the construction period would be 49 workers in 1986, 212 workers in 1987, and 546 and 392 workers, respectively, in 1988 and 1989, when operations work forces would also be present. In 1988, the project-related employment would represent about 3 percent of total county employment. Total employment effect during the operations period are forecast to increase from 472 workers in 1990 to 553 workers in 2010 and then decline to 30 workers by 2015. As shown in the table, the largest employment increases are forecast to occur in the mining and construction sectors, which in turn stimulate employment impacts in the other sectors.

As shown in Table 9.7.2.1-3, the employment effects noted above would constitute nearly 60 percent nonbasic and 40 percent basic jobs in all of the forecast years.

TABLE 9.6.2-1

Youngs Creek Scenario Forecast  
Northern Cheyenne Population, Labor Force, and Employment  
Northern Cheyenne Reservation  
(Big Horn and Rosebud County)

Year	Youngs Creek Scenario and Baseline Scenario				Employment		Unemployment Rate (Percent)	
	Population	Labor Force	Labor Force Participation Rate (Percent)	Youngs Creek Scenario	Baseline Scenario	Impact	Youngs Creek Scenario	Baseline Scenario
1980	3,255	1,007	30.9	749	749	0	25.6	25.6
1985	3,583	1,156	32.3	898	897	1	22.3	22.4
1990	3,960	1,318	33.3	858	858	0	34.9	34.9
1995	4,324	1,514	35.0	882	881	1	41.7	41.8
2000	4,670	1,662	35.6	911	911	0	45.2	45.2
2005	4,985	1,795	36.0	948	948	0	47.2	47.2
2010	5,265	1,917	36.4	988	988	0	48.5	48.5
2015	NF	NF	NF	NF	NF	NF	NF	NF

Source: Mountain West Research-North, Inc., 1982.

Note: NF = not forecast.

TABLE 9.7.2.1-1  
Youngs Creek Scenario Impact  
Population  
Sheridan County

Year	Total Population	Births	Deaths	Employment- Related Migration	Non-employment Related Migration	Total Change
1980	0	0	0	0	0	0
1981	0	0	0	0	0	0
1982	0	0	0	0	0	0
1983	0	0	0	0	0	0
1984	0	0	0	0	0	0
1985	0	0	0	0	0	0
1986	102	0	0	102	0	102
1987	432	1	0	328	-0	329
1988	1174	6	0	736	-0	741
1989	833	20	2	-356	-2	-340
1990	1020	16	1	173	-1	186
1991	1091	19	2	56	-2	71
1992	1089	20	2	-18	-2	-2
1993	1091	19	2	-11	-2	2
1994	1104	18	2	0	-2	-14
1995	1088	17	3	-27	-2	-15
2000	1066	12	4	-9	-2	-3
2005	1052	12	5	-3	-2	2
2010	1070	12	6	1	-2	5
2015	0	0	0	-547	-2	-549

Source: Mountain West Research-North, Inc., 1982.

Notes: Details may not sum due to rounding.

All values except total population represent annual changes.

TABLE 9.7.2.1-2

Youngs Creek Scenario Impact  
Total Employment by Sector  
Sheridan County

Year	Ag Propri etors	Ag Labor	Mining	Con struc tion	Manu factu ring	TCPU	Trade	FIRE	Ser vices	Gov ern ment	Other +com.	Total
1980	0	0	0	0	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0	0	0	0	0
1984	0	0	0	0	0	0	0	0	0	0	0	0
1985	0	0	0	0	0	0	0	0	0	0	0	0
1986	0	0	0	24	1	1	7	0	4	8	0	49
1987	0	0	0	105	7	7	33	3	20	34	0	212
1988	0	0	76	168	23	19	94	10	57	96	0	546
1989	0	0	104	27	20	31	79	7	46	74	0	392
1990	0	0	114	18	26	59	99	9	56	88	0	472
1991	0	0	114	19	27	86	104	10	59	94	0	514
1992	0	0	114	19	27	86	104	10	59	94	0	515
1993	0	0	114	19	27	86	105	10	59	95	0	517
1994	0	0	114	20	27	86	105	10	60	96	0	519
1995	0	0	114	20	27	86	106	10	60	96	0	521
2000	0	0	114	20	28	87	108	10	62	100	0	531
2005	0	0	114	21	28	87	111	11	63	103	0	541
2010	0	0	114	21	29	88	114	11	66	107	0	553
2015	0	0	0	2	2	2	8	1	6	10	0	30

Source: Mountain West Research-North, Inc., 1982.

Note: Details may not sum due to rounding.



TABLE 9.7.2.1-3

Youngs Creek Scenario Impact  
Employment by Type  
Sheridan County

Year	Total	Non Basic	Basic Non Project	Indirect Basic	Basic Project O&M	Project Construc-tion-Perm	Project Construc-tion-NLoc.
1980	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0
1984	0	0	0	0	0	0	0
1985	0	0	0	0	0	0	0
1986	49	25	24	0	1	6	15
1987	212	108	104	0	7	28	68
1988	546	304	241	0	19	76	103
1989	392	240	151	16	19	104	8
1990	472	287	185	41	30	114	0
1991	514	304	210	66	30	114	0
1992	515	305	210	66	30	114	0
1993	517	307	210	66	30	114	0
1994	519	309	210	66	30	114	0
1995	521	311	210	66	30	114	0
2000	531	321	210	66	30	114	0
2005	541	331	210	66	30	114	0
2010	553	343	210	66	30	114	0
2015	30	30	0	0	0	0	0

Source: Mountain West Research-North, Inc., 1982.

Notes: Details may not sum due to rounding.

"Basic project O & M" and "Indirect Basic" represent direct and indirect basic coal mining employment, respectively. No mines are assumed to operate in 2015.

Table 9.7.2.1-4 presents the income effects that are forecast to occur under the Youngs Creek scenario. As shown, the total personal income that would accrue to Sheridan County residents as a result of the Youngs Creek Mine would peak at \$11.5 million per year during the construction period and then grow from about \$9.8 million per year in 1990 to \$12.7 million per year in 2010 during the operations period. The project's impact on per capita personal income in 1990 would be to lower it from \$10,414 (baseline) to \$10,389, a difference of \$25. This decline in per capita income can be explained by the fact that Sheridan County population impacts under the Youngs Creek scenario are forecast to grow faster than income impacts during the 1980s and 1990s. However, by 2000, population growth is forecast to have slowed and the per capita income impact should again be positive at \$8. By 2010, the per capita income impact is forecast to have grown to \$28.

#### Commercial opportunities

As shown in Table 9.7.2.1-5, the population and income growth due to Youngs Creek Mine would result in about 20 additional commercial opportunities in Sheridan County in 1990 after the temporary construction period population had left and the operations period population had become stabilized. The 1990 level of 593 commercial opportunities would be 13 percent above the current 1982 level.

#### 9.7.2.2 Social Life and Cultural Diversity

As was discussed in Section 9.7.2.1, the incremental population and employment effects of the Youngs Creek Mine on Sheridan County are relatively small -- a maximum increase of fewer than 1,200 person out of a county population of 30,000. These effects will cease with mine closure. By the year 2015, no incremental population due to the mine will be present in Sheridan County. The most significant possible effects of the Youngs Creek Mine will be those associated with changes in the institutional and personal relationships between Crow and non-Crow. Although they will be regional in nature (and are therefore discussed in Section 9.3.3 above), they would nonetheless affect residents of Sheridan, Ranchester, and Dayton.

It is anticipated that the additional population and employment generated by the project will cause the trends initiated during the 1970s to continue. With the Young Creek Mine, the population will continue to be younger than it otherwise would be, and the additional employment opportunities created by the mine will attract persons of somewhat greater social diversity than would exist without the project population, in part because the project activities will create a greater flow of persons through the county. It is possible that social diversity would increase even more by the relocation of Crow employees of the mine into Sheridan, though the likelihood of this occurring is not known. The increased income in the region will support greater economic activity and diversity, especially in the greater Sheridan area. An important determinant of the extent of economic diversification will be the perceptions that managers and entrepreneurs develop about the longevity and stability of the increased economic levels. The experience of the early 1980s may inhibit business expansion, as greater caution will be taken to avoid the risks of overexpansion. The same will be true of governmental decisions regarding facility and service expansion. Although forecasts for additional population will encourage expansion of facilities, the concern for unanticipated downturns is likely to cause decision-makers to delay such expansion for as long as possible. Since a wait and see attitude has been typical of the county in the past, this will not represent a radical departure from their established approach.

During the mid-1980s, the county will need to make provisions for the influx of mine construction workers and supporting population. Discussions may be held between mine owners, union representatives, vocational educators, and the Crow on training and employment relationships on the project. The ability of the county and other institution officials to negotiate such mitigation efforts would mark an important milestone in government-industrial-tribal relationships.

TABLE 9.7.2.1-4

Youngs Creek Scenario Impacts  
 Personal Income  
 Sheridan County  
 (1980 \$000)

Year	Total Labor Income	FICA Payments	Non-labor Income	Residency Adjustment	Total Personal Income	Per Capita (1980 \$)
1980	0	0	0	0	0	0
1981	0	0	0	0	0	0
1982	0	0	0	0	0	0
1983	0	0	0	0	0	0
1984	0	0	0	0	0	0
1985	0	0	0	0	0	0
1986	881	40	145	0	986	NC
1987	3818	174	637	0	4281	NC
1988	10252	467	1726	0	11512	NC
1989	7418	338	1359	0	8439	NC
1990	8682	395	1599	0	9885	-25
1991	9388	427	1777	0	10737	NC
1992	9375	427	1833	0	10782	NC
1993	9443	430	1900	0	10913	NC
1994	9465	431	1964	0	10998	NC
1995	9492	432	2042	0	11102	NC
2000	9618	438	2419	0	11599	8
2005	9746	444	2805	0	12107	NC
2010	9910	451	3231	0	12690	28
2015	389	18	1169	0	1540	0

Source: Mountain West Research-North, Inc., 1982.

Notes: Details may not sum due to rounding.

NC = not calculated.

TABLE 9.7.2.1-5

Commercial Opportunities  
 Youngs Creek Scenario  
 Sheridan County, Wyoming  
 1990

Type of Commercial Opportunity	Youngs Creek Scenario	Baseline	Impact
<u>Retail</u>			
Gasoline Service Station	49	47	2
Eating and Drinking Place	67	65	2
Grocery and Other Food Store	23	22	1
Motor Vehicle Dealers and Auto Supply Store	20	19	1
Clothing and Shoe Store	18	17	1
Lumber, Hardware, and Mobile Home Dealers	22	21	1
Furniture and Household Appliance Stores	15	15	0
Department Stores	4	4	0
Drug, Variety, General Merchandise Stores	27	26	1
Sporting Goods, Hobby, Flowers, Gift, Sewing Stores	25	24	1
Liquor Store	11	10	1
Jewelry Store	8	7	1
Book Store and Newstands	3	3	0
<u>Service</u>			
Hotels, Motels, Commercial Campgrounds	54	52	2
Beauty and Barber Shops	31	30	1
Auto Repair Shops	30	29	1
Legal, Accounting, Advertising, Data Processing	56	54	2
Engineering, Architecture, Surveying	13	13	0
Equipment and Auto Renting and Leasing	9	9	0
Laundries	10	10	0
Appliance, Furniture, and Shoe Repair	14	13	1
Movie Theatres and Bowling Alleys	8	8	0
Janitorial Services	12	12	0
Photographic Studios	6	6	0
Car Washes	4	4	0
Funeral Services	2	2	0
<u>Finance and Real Estate</u>			
Real Estate Office	26	25	1
Insurance Agencies	12	12	0
Personal Credit Institution	7	7	0
Commercial Bank	6	6	0
Savings and Loan Association	1	1	0
<b>TOTAL</b>	<b>593</b>	<b>573</b>	<b>20</b>

Source: Mountain West Research-North, Inc., 1982.

Note: Forecast population in 1990 = 29,790.



The increased importance of mining in the area economy and the increased buying power of the Crow and the Crow Tribe will encourage local business and social service (including educational) interests to develop additional linkages to mining and to the reservation. Although in the short run this will provide additional opportunities and diversity in the community, the basic dependence upon mining will remain, exposing residents to the risks of unanticipated downturns in the mining industry and to greater impacts during the phase-out period. Both residents and leaders in the county will be increasingly concerned if efforts for diversification are not pursued successfully. The experience of the early 1980s has created an unease about large expansions that are dependent upon continued mining activities. This is especially true in the Sheridan area (and Wyoming), which does not have access to the severance tax funds accruing from the mining activities to ease or prevent this bust cycle.

The increased population (due both to baseline and with-project growth) will have small, incremental effects on the changes in social organization discussed in Section 4.7.2.2. Most of these effects will be felt at the community level and are therefore discussed in subsequent sections. Some, however, will be more diffused throughout the county. The increased population will cause additional pressure on the area ranchers to open their land for hunting, fishing, and other outdoor recreational activities. Though most ranchers in the county have traditionally been willing to accommodate such requests, the magnitude of the population will raise the demand for such activities to the level that some ranchers may seek to avoid the issue or to protect themselves by simply closing and posting their land. Interviews with rural residents in Sheridan County indicate that this change in tradition will be made with regret. If widespread, it is likely that such actions would create increased pressure on public lands, decreased satisfaction by both longtime and newcomer residents of the more urbanized areas of the county, and increased incidence of trespassing and vandalism. However, unless active measures are taken to avert such consequences, it appears likely that this outcome will occur sooner or later.

Of greater potential importance are the changes in intergroup and institutional relationships that may occur with the implementation of the Youngs Creek Mine (see Section 9.3.3.). It is expected that the experience gained by the county during the 1970s will enable it to deal expeditiously with the forecast population growth. It is likely that the handling of growth will prove to be easier than the handling of the decline the county has experienced during the early 1980s and will experience at the turn of the century under the forecast scenario. It is generally easier to plan for and control growth than decline. One reason for this is that economic decline and loss of population is more thoroughly beyond the control of the local community/county than growth, which can be at least somewhat controlled by local regulations. In addition, funds have historically been more readily available during the growth than during the bust cycle.

#### Perceptions of the Community and Indicators of Social Well-being

As during the 1970s, the residents of Sheridan County will place different interpretations upon the changes that take place as a result of the mining activity. Most will continue to regret the effect of mining on the local environment and will be concerned about possible long-term effects on water and agriculture. If area residents perceive that the current trends toward increased landholding by energy companies (which removes land from agricultural use) are accelerated by the project, many will disapprove. Increased traffic congestion and pressure on housing will also be viewed with displeasure by most area residents, particularly the elderly who feel themselves especially inconvenienced and affected by such change. The transients present in the community during the construction phase of the project will probably be considered a detriment to the community, just as they were during the 1970s. At the same time, most residents genuinely wish the community and county to prosper and for residents to have satisfying and well-paying jobs. They do not, however, want to sacrifice the amenities, the small-town character, or the aesthetics of their community.



Aside from the changes in material well-being that are described in the other sections, the incremental changes in demographic and social characteristics of the community due to the project will be slight and not sufficient to cause predictable effects on behavioral indicators such as crime and suicide. These types of indicators are expected to be much more dramatically affected by changes in baseline conditions (including national trends) than by the project.

#### 9.7.2.3 Housing

As shown in Table 9.7.2.3-1, no housing deficits are forecast to occur under the Youngs Creek scenario in Sheridan County. More detail on the Youngs Creek Mine's impact on housing demand in Sheridan subcounty areas is provided in subsequent sections. The actual/housing demand forecasts by type of unit for each area under the Youngs Creek scenario are summarized in tables found in Appendix B. These forecasts do not take into account the effect of increased income on housing demand, which is discussed more fully in Section 2.3.3.

#### 9.7.2.4 Facilities and Services

##### Sheridan County

The facilities and services requirements, although on a somewhat different schedule and a somewhat larger scale, are similar to those projected for the baseline (see Appendix C).

##### Memorial Hospital of Sheridan County

A requirement for approximately eight additional beds is projected for the Youngs Creek Mine scenario. Based on the population projections and sizing rules discussed in Section 2.3.4, the additional capacity is phased in three increments in 1988, 1996, and 2002. (See Appendix C.)

##### Social Services

Under the Youngs Creek scenario, the Sheridan County Division of Public Assistance and Social Services would need to increase its staff from the current level of 13 persons to 15.2 persons in 1995 and 15.7 persons in 2015 (based on the 1982 ratio of .0005 staff persons per capita). While the 1995 requirement would be about 0.5 persons above the baseline level, the 2015 requirements are identical under both KME and baseline scenarios. Hence, the KME Mine could result in the need for one additional part-time staff person above baseline needs.

Based on a space standard of 0.1 sq. ft. per capita, space requirement would be 3,048 sq. ft. in 1995 (109 sq. ft. above baseline) and 3,151 sq. ft. in 2015 (equal to baseline). However, if the 1982 space ratio of .1289 sq. ft. per capita is to be maintained, then the current 3,400 sq. ft. of space would need to be expanded to 3,928 sq. ft. in 1995 (141 sq. ft. above baseline) and 4,061 sq. ft. in 2015 (equal to baseline). Hence, regardless of the standard used, the incremental demand generated under the KME scenario would be enough to trigger the addition of about 100 to 150 sq. ft. or one office above that required under the baseline scenario.

TABLE 9.7.2.3-1

Youngs Creek Scenario Forecast  
Housing Unit Demand/Supply  
Sheridan County

Year	Total Demand	Incremental Demand Over Previous Year	Local Supply Response (Limit = 500)	Cumulative (Deficit) Surplus Due to Project
1980	10,457			
1981	10,959	502	500	(2)
1982	11,041	82	84	0
1983	11,135	94	94	0
1984	11,227	92	92	0
1985	11,545	318	318	0
1986	11,859	314	314	0
1987	12,129	270	270	0
1988	12,617	488	488	0
1989	12,722	105	105	0
1990	13,041	319	319	0
1991	13,199	158	158	0
1992	13,385	186	186	0
1993	13,553	168	168	0
1994	13,698	145	145	0
1995	13,922	224	224	0
1996	14,100	178	178	0
1997	14,203	103	103	0
1998	14,347	144	144	0
1999	14,505	158	158	0
2000	14,723	218	218	0
2005	14,626	-97 for 5 years	0	97
2010	15,648	1,022 for 5 years	925 for 5 years	0
2015	15,095	-553 for 5 years	0	-553

Source: Mountain West Research-North, Inc., 1982.

Note: Includes Big Horn County non-Indian population and Crow population in Hardin.

#### 9.7.2.5 Fiscal

##### Sheridan County

The Youngs Creek Mine scenario has a negative effect on the fiscal balance when compared with the baseline. Utilizing the assumptions described in Chapter 2, by 2015 the impact on the cumulative fiscal balance would be a negative \$1.8 million. Prior to 1987, the projected annual negative impacts are less than \$50,000 but increase to approximately \$100,000 in 1988 through 2005. (See Appendix C.) See Chapter 4 for a discussion of the assumptions and mechanisms by which these deficits occur.

##### Memorial Hospital of Sheridan County

Due to the increased sizing of capital requirements, the Youngs Creek Mine scenario has a slight negative impact on the fiscal balance of the hospital. However, by 2005 the impact on the cumulative balance is only a negative \$153,000. (See Appendix C.)

#### 9.7.2.6 Schools -- Facilities and Services and Fiscal

##### School District No. 1

The Youngs Creek scenario would result in a negative fiscal impact on the district. The impact, however, is less than \$50,000 per year. Assuming no response to the deficit conditions, by 2005 the cumulative fiscal impact is forecast to reach \$450,000.

##### School District No. 2

The Youngs Creek Mine scenario results in a negative fiscal impact on the district. Assuming no response to deficit conditions, by 2005 the cumulative fiscal impact is forecast to reach a negative \$5.5 million. The negative fiscal impact results from higher capital requirements and increased operating costs which are not offset by increased revenues.

#### 9.7.3 Sheridan and Area

##### 9.7.3.1 Introduction

This section presents the Youngs Creek impact forecasts for the city of Sheridan and the greater Sheridan area. Section 9.7.3.2 presents the population and economic impact forecasts for each area. Section 9.7.3.2 presents the population and economic impact forecasts for each area. Section 9.7.3.3 discusses social life in Sheridan and the Sheridan area under the Youngs Creek scenario. The housing impact forecasts are presented in Section 9.7.3.4. Facilities/services and fiscal forecasts are presented in sections 9.7.3.5 and 9.7.3.6, respectively.

##### 9.7.3.2 Population and Economy

As shown in Table 9.7.3.2-1, population impacts in the city of Sheridan under the Youngs Creek scenario would begin in 1986 at 65 people, peak in 1988 at 732 people, decline to 512 in 1989, and then grow rapidly to 696 people in 1991. The population impact would remain at about 690 people through 1998 and then decline to 673 people in 2010 and zero people by 2015. Between 1998 and 2010, the project-related

TABLE 9.7.3.2-1

Youngs Creek Scenario Impact  
Population  
Sheridan County Allocation Areas

Year	Sheridan County	Sheridan City	Greater Sheridan Area	Ranchester Dayton Area	Rest of County
1980	0	0	0	0	0
1981	0	0	0	0	0
1982	0	0	0	0	0
1983	0	0	0	0	0
1984	0	0	0	0	0
1985	0	0	0	0	0
1986	102	65	29	7	0
1987	432	277	124	30	0
1988	1,174	732	346	89	5
1989	833	512	250	73	2
1990	1,020	646	278	79	16
1991	1,091	696	292	81	21
1992	1,089	692	293	82	20
1993	1,091	692	294	83	20
1994	1,104	701	297	84	21
1995	1,088	689	294	83	20
1996	1,086	686	295	84	20
1997	1,081	685	293	83	19
1998	1,089	690	295	83	20
1999	1,070	675	292	83	18
2000	1,066	671	292	84	18
2005	1,052	662	288	83	19
2010	1,070	673	293	84	20
2015	0	0	0	0	0

Source: Mountain West Research-North, Inc., 1982.

Note: Details may not sum due to rounding.

population effects would represent about 10.8 percent of the city's total population. The population effects in the greater Sheridan area would follow a similar pattern, with the peak impact of 346 people at the end of construction and about 290 people (5 percent of the total population) during most of the operations period.

In 1990, when operations employment at the Youngs Creek Mine would have reached its peak, employment in Sheridan would be 9,260 workers, or 299 workers above baseline employment of 8,961 workers. In the greater Sheridan area, employment would be 2,627 workers, or 141 workers above the baseline employment of 2,486 workers. The 1990 labor income in the city of Sheridan would be \$132.2 million, or \$5.3 million above baseline labor income of \$126.9 million. In the greater Sheridan area, total labor income in 1990 would be \$37.6 million, or \$2.7 million above the baseline labor income of \$34.9 million.

#### 9.7.3.3 Social Life and Cultural Diversity

As was shown in Section 9.7.3.2, the city of Sheridan and the surrounding area will experience two periods of impact from the proposed project: (1) mine construction and the initial operating period scheduled for the 1980s, and (2) the closing of the mine at the beginning of the century. Between these two transitional periods, the population effects of the project are forecast to be of little significance (approximately 1,000 persons) and nearly stable. By the end of the forecast period, all population and employment effects of the project have ceased.

As discussed in Section 9.7.2.2, the additional population due to the project will build upon the trends established during the 1970s and continued by the baseline population and employment growth. During the forecast period, the community of Sheridan will have the benefit of its experience with growth during the 1970s. Community leaders and residents alike can therefore be expected to be better prepared for, less surprised by, and less anxious about the changes occurring during the forecast period. Because the incremental population growth due to the project is limited, it should not pose a particular problem for decision-makers, especially if adequate communication between the company and the community takes place.

It is anticipated that the downturn in employment and population during the phase-out period of the project will cause the community more problems than will the growth period. The loss of a major component of the local economy -- particularly one which is a basic industry and which therefore has created many additional jobs which will also be lost -- is a shock to any community. Ramifications of the closure will be felt throughout the economy, and, because of the extent to which local residents will have participated in these jobs, throughout the population as well. These effects can be somewhat minimized if the phase-out period is anticipated and scheduled. Other changes in economic structure and governmental activities and services are addressed elsewhere in the chapter and are not repeated here.

The changes that are expected to occur in social organization as a consequence of the project (over and above those due to baseline growth) and those discussed at the regional and county level are not significant. Once the processes of change, as described in chapters 3 and 4, have been set in motion, the incremental effects of the additional mine will be slight, creating a difference in the degree rather than a difference in the kinds of changes that would occur.

Over the forecast period, the process of informally dividing the community into multiple social groupings will continue with the influx of mine construction workers and miners who will surely be a distinguishable group. Based on previous reactions, the issue of union membership may come to play an increasing role in the formation of these informal groupings. It should be noted, however, that this factor will also be strongly, if not predominately, determined by the interaction patterns established by the miners and other workers associated with the baseline mines.



The magnitude of mining in the economy of the area with the addition of the proposed project may actually reduce the diversity of the economic base of the region, as the economy becomes dominated by the mining sector. It is expected, however, that other forces such as tourism and regional trade, as well as the changing age structure and an increasing emphasis by community leaders on economic diversification will provide some countervailing pressure, reducing this potentially adverse effect.

The new social diversity and the increased economic activities of the area will cause the political procedures and structures of the community to undergo further adjustment along the lines suggested in Chapter 4. As the new coal mine is added to area economic activities, the influential position of mining interests will be further enhanced as their dominance in employment, financial resources, and extralocal linkages increases and as their linkages within the community become more firmly established. This in turn is likely to promote a counter response by the nonmining interests in the community. As a result, decision-making will become more complex and formalized, though the changeover baseline conditions will probably not be marked. In sum, it is expected that the process of increased diversity/complexity that was initiated by the coal development activities of the 1970s will be continued and enhanced, but that no major new trends will be introduced by the project.

The project will similarly accelerate the process of opening and widening the distribution of community resources and power that was also initiated during the 1970s. As the incoming population becomes established in and familiar with the community, they are likely to make demands for access to resources, particularly positions of power. The increasing numbers of corporate executives and managers who are established members of the community will accelerate this process. In the near term, positions of power are likely to be attained by newcomers most frequently by appointment or participation on voluntary committees and organizations. Over the longer term, especially as the proportion of newcomers in the population increases, elected positions will become more accessible to a wider variety of community residents. These changes are expected to occur under baseline conditions; the effect of the project will be to accelerate and intensify them. Although the status system has already begun to change -- with the declining importance of ranching and the significant generational transition that is occurring (as the "pioneers" die out) -- the strength of the old system and its continuing appeal to many of the newcomers will make the transition slow and gradual. It is not possible to state in advance what new patterns of status criteria will emerge, but it is likely that they will be somewhat more similar to national norms than they are now.

As discussed in chapters 3 and 4, Sheridan has always cultivated effective outside linkages. Consequently, the project, which will tend to increase the opportunities and importance of outside linkages, will have little important effect on the community in this regard.

Similarly, the process by which the interaction and communication patterns in the community will be disaggregated into clusters rather than integrated into a single unit will continue. As discussed in chapters 3 and 4, the integration of community residents will take place to a greater and greater extent through this more diffuse process as community size and diversity make it impossible for residents to be personally familiar with one another. Consequently, the type of community integration and affiliation experienced in the earlier days of Sheridan are not expected to be reestablished over the forecast period, under either baseline or with-project conditions.

As a consequence, the coordination of community resources and initiation of new programs are likely to become more complex and difficult, placing new demands upon leaders and followers alike. At this point, it does not appear likely that severe difficulties will be encountered in managing conflict, although it will probably become more difficult to gain active collaboration on a community-wide basis.

Sheridan has already gone past the point that there is much chance that things will return to "be like they were in the old days." The community has already changed. Most of the growth that has occurred has been seen as beneficial. Additional growth is generally viewed as good for the community. Once a community has gone past the point where the past is irrecoverable -- as in the transition from a shared history

to a community of persons with diverse backgrounds -- fewer and fewer of the new changes are considered to be of great importance. This is Sheridan's present position.

It is anticipated that Sheridan will continue to be seen as a good place to live over the course of the forecast period, with a good quality of life, good recreational opportunities, and pleasant people. Nevertheless, longtime residents are likely to regret the loss of the oldtime sense of community and the increasing urban characteristics such as higher crime rates, less sense of personal security and familiarity, and diminished importance of agricultural values.

Sheridan has always been an elite community; the presence of those with wealth and status -- and the importance given to these characteristics -- has been one of its more noteworthy characteristics. The infusion of new population, including the new mine-related workers, will gradually erode this elitism. Those who have lived in Sheridan for a very long time -- who have graduated from high school there -- are likely to regret the changes that will occur during the next twenty years. These feelings will not be fully shared by the more recent arrivals, but it is likely that even many of them, attracted as they were by these very attributes, will feel some loss as they compare the community at the end of the forecast period with the way it was when they first came. If the growth in population and employment proceeds as forecast, it is likely that Sheridan will become increasingly similar to national norms and will lose some of its distinctive character.

#### 9.7.3.4 Housing

As shown in Table 9.7.3.4-1, the housing demand impacts of the Youngs Creek Mine in Sheridan would begin in 1986 and end by 2015. During this period, approximately 300 to 400 additional housing units would be needed by the direct and indirect population associated with the Youngs Creek Mine. Similarly, about 90 to 100 additional units would be needed in the greater Sheridan area during the same time period. As noted in Section 9.7.2.3, this additional demand is within the current capacity of local builders.

#### 9.7.3.5 Facilities and Services

The facilities/services requirements under the Youngs Creek scenario, although somewhat different in schedule and scale, are similar to those projected for the baseline. (See Appendix C.)

#### 9.7.3.6 Fiscal

The larger sizing of projected capital facilities without corresponding increases in revenues, results in a negative fiscal impact. Assuming no response to a deficit financial position, by 2005 the cumulative fiscal impact is forecast to reach a negative \$1.1 million. The fiscal balance for operations, however, is not significantly impacted by this scenario, reflecting the policies of the city to ensure that service provision pays its own way. (See Appendix C.)

### 9.7.4 Ranchester, Dayton, and Area

#### 9.7.4.1 Introduction

This section presents the Youngs Creek Mine impact forecasts for Ranchester, Dayton, and the surrounding area. Section 9.7.4.2 presents the population and economic impact forecasts. Section 9.7.4.3 discusses social life in the Ranchester-Dayton area under the Youngs Creek scenario. The housing impact forecasts are presented in Section 9.7.4.4. Facilities/services and fiscal forecasts are discussed in sections 9.7.4.5 and 9.7.4.6, respectively.

TABLE 9.7.3.4-1

Youngs Creek Scenario  
Housing Demand Impacts  
Sheridan County Allocation Areas  
(Housing Units)

Year	Sheridan County	Sheridan City	Greater Sheridan Area	Ranchester- Dayton Area	Rest of County
1980	0	0	0	0	0
1981	0	0	0	0	0
1982	0	0	0	0	0
1983	0	0	0	0	0
1984	0	0	0	0	0
1985	0	0	0	0	0
1986	36	25	8	2	0
1987	152	105	35	11	0
1988	429	94	100	32	2
1989	324	224	75	26	0
1990	403	284	83	29	6
1991	438	309	89	30	8
1992	445	314	91	31	9
1993	453	319	92	31	9
1994	465	328	95	32	9
1995	465	327	95	32	9
1996	471	331	97	33	9
1997	476	335	97	33	9
1998	486	342	99	34	9
1999	486	341	100	34	9
2000	491	344	102	35	9
2005	484	339	101	34	9
2010	492	345	102	35	9
2015	0	0	0	0	0

Source: Mountain West Research-North, Inc., 1982.

Note: Details may not sum due to rounding.

#### 9.7.4.2 Population and Economy

As shown in Table 9.7.3.2-1, population effects in the Ranchester-Dayton area under the Youngs Creek scenario would increase from 7 people in 1986 to about 85 people through 2010. In 1990, when the Youngs Creek Mine would have reached full operations employment, employment in the Ranchester-Dayton area would be 992 workers, or 32 workers above baseline employment of 960 workers. Labor income of \$14.6 million in 1990 would be \$0.7 million above baseline labor income of \$13.9 million.

#### 9.7.4.3 Social Life and Cultural Diversity

As was discussed in Section 9.7.4.2, the Ranchester-Dayton area will experience two periods of transition in population due to the project. The first will occur in the late 1980s, when mine construction and operations are initiated, after which the population effects due to the project will remain nearly constant until the second transition occurs during phase-out following the turn of the century. The population and employment effects of the Youngs Creek Mine on the two communities is forecast to be very slight -- a maximum of just over 80 persons divided between the two communities. Since both communities have had extensive experience with the effects of surface mining (from the mid-1970s to the present), it is not anticipated that this degree of population and employment change will have more than barely perceptible effects on them. Baseline changes will be considerably more important than those introduced by the new mine. The net effect of the Youngs Creek Mine on these two communities will be to reinforce the trends initiated during the 1970s. The new mine is not likely to initiate significant change in social organization or perceptions of community in either Ranchester or Dayton.

Both communities have felt themselves adversely affected by the slowdown in mining that occurred during the early 1980s. Residents generally appear to favor moderate growth; the incremental effects of the project would fall within the range considered desirable. However, the experience of the early 1980s and observations about the uneven history of coal resource communities has led residents in both Ranchester and Dayton to favor the development of alternative basic industries and employment and to reduce their dependence upon coal-related activities. Throughout the forecast period, the project activities will not substantially alter the character of the two communities --- they will remain essentially small, rural communities with strong ties to Sheridan. Aside from the changes in income, employment, housing, and public facilities/services noted in other sections, the anticipated effects of the project on social well-being indicators is expected to be very slight and well within the margin of error of the baseline estimates.

#### 9.7.4.4 Housing

As shown in Table 9.7.3.4-1, the housing demand impacts of the Youngs Creek Mine in the Ranchester-Dayton area would begin in 1986 and end by 2015. During this period, approximately thirty to thirty-five additional housing units would be needed by the direct and indirect population associated with the Youngs Creek Mine. As noted in Section 9.7.2.3, this additional demand is within the current capacity of local builders.

#### 9.7.4.5 Facilities and Services

The facilities/services requirements, although somewhat different in schedule and scale, are similar to those projected for the baseline scenarios for both Ranchester and Dayton (See Appendix C).



#### 9.7.4.6 Fiscal

Due to the larger sizing of capital facilities, the Youngs Creek mine scenario has a slight negative fiscal impact on Ranchester and Dayton. Even assuming no response to a deficit financial position, by 2005 the cumulative negative fiscal impact for both towns is forecast to remain below \$100,000. Details are provided in Appendix C.

#### 9.7.5 Rest of County

##### 9.7.5.1 Introduction

This section presents the Youngs Creek impact forecasts for the rest of Sheridan County. Section 9.7.5.2 presents the population and economic impact forecasts for the area. Because the Youngs Creek Mine would not have significant population impacts in the area, detailed housing, facilities/services, and fiscal forecasts are not presented here.

##### 9.7.5.2 Population and Economy

As shown in Table 9.7.3.2-1, population impacts in the rest of Sheridan County under the Youngs Creek scenario would reach a peak of twenty-one people in 1987, and remain at about twenty people through 2010. In 1990, when the mine would have reached full operations employment, employment in the rest of Sheridan County would be 1,898 workers, or 2 workers above baseline employment of 1,896 workers. Labor income of \$24.6 million in the year 1990 would be \$0.1 million or about \$100,000 above baseline labor income of \$24.5 million.

### 9.8 Mitigation and Enhancement Measures

#### 9.8.1 Big Horn and Sheridan Areas

Impacts due to the development of the Youngs Creek Mine would be quite similar to those under the KME scenario, with the exception of the much greater number of Crow employed at Youngs Creek. No significant impacts are forecast for Big Horn County outside the reservation. The impacts in the Sheridan area would be slightly less than in the KME case. Relevant mitigation measures would be the same as those cited under Section 7.8.2 (KME development).

#### 9.8.2 Crow Reservation

For a discussion of mitigation and enhancement measures for the Crow Reservation, see the Socio-economic Assessment Report (AITS 1983).



## 10. CUMULATIVE SCENARIO



## 10. CUMULATIVE SCENARIO

### 10.1 Introduction

This chapter presents the impact forecasts for the study region under the cumulative impact scenario. As explained more fully in Chapter 5, the cumulative scenario includes the baseline mines at full production, the KME Mine, the Conso1 Level 2 Mine, the Youngs Creek Mine, the Tanner Creek Mine, and associated railroads for all mines. Mine employment characteristics for all mines are based on the assumption that the new road from Lodge Grass through the mine areas to Sheridan is in place. The impact forecasts are presented for the region and for its counties, communities, and jurisdictions, with emphasis placed on the communities and jurisdictions that would be most affected by the mines in the cumulative scenario.

For each entity, population, economy, social life and cultural diversity, housing, facilities/services, and fiscal forecasts of with-project conditions and project-related impacts are presented. In addition, transportation, outdoor recreation, and land use impacts are presented on a regional level.

The chapter is organized into six sections. Section 10.2 presents the assumptions upon which the cumulative scenario impacts are forecast. Section 10.3 presents the impact forecasts for the region. Section 10.4 presents the impact forecasts for Big Horn County and its communities. The impact forecasts for the Crow and Northern Cheyenne Indian reservations are presented in sections 10.5 and 10.6, respectively. Section 10.7 presents the impact forecasts for Sheridan County and its communities.

### 10.2 Assumptions

The assumptions used to develop the impact forecasts for the site-specific scenario are discussed in chapters 2 and 5 and are not repeated here. In addition, the population and employment forecasts for the cumulative scenario presented in Chapter 6 are utilized throughout this analysis. The employment forecasts for Crow and Northern Cheyenne assume Indian preference policies at the Youngs Creek, Tanner Creek, and Absaloka mines, but not at the other area mines. Adherence to such a policy at these other mines could substantially increase Crow and Northern Cheyenne employment opportunities.

### 10.3 Overview of Impacts

#### 10.3.1 Introduction

This section, which is divided into eight subsections, presents a regional overview of the impacts that are forecast to occur under the cumulative scenario. Section 10.3.2 presents the population and economic impact forecasts and also summarizes the results of the special research that was conducted in the course of this study. Section 10.3.3 discusses social life and cultural diversity under the cumulative scenario. The housing impact forecast for the region is summarized in Section 10.3.4. Facilities/services and fiscal forecasts are presented in sections 10.3.5 and 10.3.6, respectively. Section 10.3.7 presents a regional overview of the transportation forecasts. Finally, sections 10.3.8 and 10.3.9 present regional overviews of outdoor recreation and land use conditions under the cumulative scenario.

### 10.3.2 Population and Economy

As shown in Table 10.3.2-1, population effects for the cumulative scenario would begin in 1985 and last through 2015. The population effects are forecast to increase rapidly from 460 people in 1985 at the start of the construction period of the KME and Consol mines to almost 5,000 people in 1990 when the KME, Consol, and Youngs Creek mines would be at full operation. The population impacts would then increase steadily to about 8,200 people in 2002 and then decline to 3,897 people by 2015 when only the Consol Level 2 and Tanner Creek mines would be operating. At their peak in 2002, the population effects of the proposed mines would raise the regional population about 17.5 percent above baseline levels.

As shown in Table 10.3.2-2, the total employment impact under the cumulative scenario would begin in 1985 at 259 workers, grow steadily to almost 5,000 workers by 2002, and then decline to 2,226 workers in 2015. As shown in the table, the largest employment increases are forecast to occur in the mining and construction sectors, which in turn stimulate employment impacts in the other sectors.

As shown in Table 10.3.2-3, throughout the forecast period, nearly 45 percent of the total employment due to the projects would be basic jobs while the remaining 55 percent would be nonbasic jobs.

Table 10.3.2-4 presents the income effects that are forecast to occur under the cumulative scenario. As shown, the total personal income that would accrue to study region residents as a result of the cumulative scenario begins at \$6 million per year in 1985 and increases through successive plateaus to almost \$140 million per year in 2003. In 1990, the projects would increase per capita personal income from \$9,103 (baseline) to \$9,774, a difference of \$671. In 2000, the difference between cumulative scenario and baseline per capita income is forecast to be \$1,130. In 2010, it is forecast to fall slightly to \$1,113 due to the relationship between income and population growth during this latter period.

### 10.3.3 Social Life and Cultural Diversity

The effects of the cumulative scenario on the social life and cultural diversity of the non-Crow areas of the study region are expected to be similar to but more intense than those forecast for the site-specific scenarios. The proposed mines will bolster the area economy, increasing area employment, income, and commercial activities (as discussed in Section 10.3.2); will generate additional revenues for the state of Montana and for Big Horn County and its communities without increasing the population by a large increment; and will substantially increase the population of some communities in the proximity of the mines. As shown in Table 10.3.3-1, project-related growth will increase the population of the Decker, Sheridan city and area, and Ranchester, Dayton and area by 28.7 percent in 2000. At this time, a forecast 22.3 percent of this area's population will be project-related. Although coal mining of the nature proposed for the mines in the cumulative scenario is already an established activity in the study area, at the levels proposed it will have notable effects on the economic, political, and social diversity and complexity of the study region and may be sufficient to affect resource availability in the most heavily impacted areas.

The dramatic expansion of coal mining activities in the region that are indicated by the cumulative scenario is likely to prompt Wyoming state officials and local leaders as well as the management of the active coal-development companies to strengthen existing linkages between the communities and outside agencies and businesses; plans for the projects have already been influential in the decision of one of the participants to locate a regional headquarters in Sheridan. It is anticipated that similar consolidation and expansion of corporate activities will occur under the cumulative scenario. As the high levels of mining continue for many years, the linkages between industry and government will probably become firmer, as both parties gain experience in collaborative planning and response, and as coal mining comes to be increasingly dominant in the local economy. The high proportion -- as well as the absolute magnitude -- of population, employment, and income that is based on mining-related activities will make the

TABLE 10.3.2-1  
Cumulative Scenario Impacts  
Population  
Study Region

Year	Total Population	Births	Deaths	Employment- Related Migration	Non-employment Related Migration	Total Change
1980	0	0	0	0	0	0
1981	0	0	0	0	0	0
1982	0	0	0	0	0	0
1983	0	0	0	0	0	0
1984	0	0	0	0	0	0
1985	460	0	0	460	0	460
1986	2467	7	0	2000	-0	2006
1987	4550	42	4	2050	-4	2083
1988	4771	84	8	154	-9	220
1989	4848	89	10	7	-10	77
1990	4979	90	11	62	-10	130
1991	5056	88	12	10	-10	76
1992	5050	85	13	-67	-10	-5
1993	5047	79	14	-58	-10	-3
1994	5094	74	14	-1	-11	47
1995	5019	71	16	-119	-11	-75
2000	7907	117	28	-67	-20	1
2005	7824	103	38	-230	-19	-183
2010	7143	73	43	32	-15	47
2015	3897	40	23	41	-8	50

Source: Mountain West Research-North, Inc., 1982.

Notes: Details may not sum due to rounding. All values except total population represent annual changes.



TABLE 10.3.2-2

Cumulative Scenario Impacts  
Total Employment by Sector  
Study Region

Year	Ag Propri etors	Ag Labor	Mining	Con struc tion	Manu factu ring	TCPU	Trade	FIRE	Ser vices	Gov ern ment	Other +com.	Total
1980	0	0	0	0	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0	0	0	0	0
1984	0	0	0	0	0	0	0	0	0	0	0	0
1985	0	0	0	136	7	7	39	5	23	40	0	259
1986	0	0	198	517	36	38	190	25	126	210	0	1343
1987	0	0	683	579	66	111	330	44	241	380	0	2436
1988	0	0	1003	429	77	142	365	47	318	430	0	2814
1989	0	0	1144	127	82	184	377	48	320	434	0	2717
1990	0	0	1169	111	88	212	399	49	351	457	0	2839
1991	0	0	1169	112	89	239	405	50	355	464	0	2886
1992	0	0	1169	113	89	239	407	51	356	467	0	2893
1993	0	0	1169	113	90	240	409	51	358	470	0	2902
1994	0	0	1169	114	90	240	411	51	359	473	0	2911
1995	0	0	1169	114	91	241	414	52	361	476	0	2921
2000	0	0	1803	195	152	427	683	84	616	777	0	4739
2005	0	0	1810	201	155	423	696	86	633	798	0	4811
2010	0	0	1621	193	149	415	665	81	607	756	0	4500
2015	0	0	790	78	83	269	354	36	242	375	0	2226

Source: Mountain West Research-North, Inc., 1982.

Note: Details may not sum due to rounding.

TABLE 10.3.2-3

Cumulative Scenario Impacts  
Employment by Type  
Study Region

Year	Total	Non Basic	Basic Total	Basic Non Project	Indirect Basic	Basic Project O&M	Project Construc- tion-Perm	Project Construc- tion-NLoc.
1980	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0
1984	0	0	0	0	0	0	0	0
1985	259	123	135	0	9	0	67	58
1986	1343	644	698	0	32	198	242	225
1987	2436	1171	1265	42	45	683	262	232
1988	2814	1371	1443	66	49	1003	215	109
1989	2717	1379	1337	107	61	1144	16	8
1990	2839	1466	1373	132	72	1169	0	0
1991	2886	1488	1398	157	72	1169	0	0
1992	2893	1495	1398	157	72	1169	0	0
1993	2902	1504	1398	157	72	1169	0	0
1994	2911	1513	1398	157	72	1169	0	0
1995	2921	1522	1398	157	72	1169	0	0
2000	4739	2513	2226	290	133	1803	0	0
2005	4811	2583	2227	282	129	1816	0	0
2010	4500	2468	2032	282	129	1621	0	0
2015	2226	1219	1007	176	41	790	0	0

Source: Mountain West Research-North, Inc., 1982.

Notes: Details may not sum due to rounding. "Basic project O&M" and "Indirect Basic" represent direct and indirect basic coal mining employment, respectively. No mines are assumed to operate in 2015.

TABLE 10.3.2-4

Cumulative Scenario Impacts  
Personal Income  
Study Region  
(1980 \$000)

Year	Total Labor Income	FICA Payments Payments	Non-labor Income	Residency Adjustment	Total Personal Income	Personal Income Per Capita (1980 \$)
1980	0	0	0	0	0	0
1981	0	0	0	0	0	0
1982	0	0	0	0	0	0
1983	0	0	0	0	0	0
1984	0	0	0	0	0	0
1985	5459	285	835	0	6008	NC
1986	28996	1515	4564	0	32045	NC
1987	53438	2786	8757	0	59410	NC
1988	64075	3520	10924	0	71480	NC
1989	64282	3509	11247	0	72021	NC
1990	68654	3806	12231	0	77078	671
1991	69428	3842	12615	0	78202	NC
1992	69491	3845	12896	0	78542	NC
1993	69643	3852	13216	0	79007	NC
1994	69758	3857	13560	0	79461	NC
1995	69888	3863	13920	0	79945	NC
2000	115802	6513	23561	0	132850	1113
2005	116959	6600	26273	0	136632	NC
2010	108740	6185	27252	0	129806	1113
2015	49403	2601	13229	0	60030	420

Source: Mountain West Research-North, Inc., 1982.

Notes: Details may not sum due to rounding. The personal and per capita figures do not include Crow dividends from royalties and a possible Crow severance tax. NC = not calculated.

TABLE 10.3.3-1

Population Effects in Most Heavily Impacted Areas  
Decker, Sheridan and Area, Ranchester, Dayton and Area  
1980-2015

Year	Baseline	Cumulative	Percent Increase	Percent of Population
1980	22,201	22,201	0.0	0.0
1985	23,983	24,442	1.9	1.9
1990	25,536	30,358	18.9	15.9
1995	26,146	31,010	18.6	15.7
2000	26,471	34,069	28.7	22.3
2005	26,171	33,083	26.4	20.9
2010	28,044	34,908	24.5	19.7
2015	27,943	31,686	13.4	11.8

Source: Mountain West Research-North, Inc., 1983.

region increasingly vulnerable to significant downturns or widespread labor disputes in the mining industry. Residents of the region are sensitive to this increasing dependence upon a highly volatile and cyclic industry and are likely to continue efforts to diversify the regional economy. The magnitude of the forecast coal-related growth is likely to make such diversification more difficult as area resources and attention are diverted by the opportunities and demands of growth and as housing and public facility capacities are exceeded and costs increase.

The continuation of mining and the sustenance of mining level incomes and occupations are likely to accelerate the baseline trends toward alteration of the local stratification systems that were initiated during the 1970s. The magnitude of the incoming population, when combined with the population that entered the region during the 1970s and with the baseline growth, will undoubtedly dilute the influence of the established elite. The presence of the new mines is expected to supplement the trend toward greater participation and increasing social and political influence by nonranchers and those with limited (or completely without) familial ties to longtime community elites. Although ranching and agricultural activities are forecast to be almost totally unaffected by the increased mining and are therefore forecast to continue at baseline levels, their importance to the region's economy and lifestyle characteristics will be reduced as their proportion of the economy declines. Historical evidence, however, indicates that these lifestyles, though perhaps modified, are likely to persist and to retain an importance in the value structure of the region out of proportion to their economic contribution.

The potential of additional mining -- and its realization -- will encourage area residents and their governmental representatives to pursue issues of planning and coordination. Those who are opposed to coal mining and to further growth in the area -- an acknowledged minority -- will dislike the persistence of the trends toward greater governmental control and planning of the 1970s. While most residents of the area will be relieved that the depressed economy of the early 1980s has been revitalized, the magnitude of growth under the cumulative scenario may exceed the preferred level of many current residents. The need for more centralized and instrumental mechanisms to ensure adequate planning and cooperation between local jurisdictions is likely to raise issues of local control, community identity and autonomy, and political influence. As the population of Sheridan grows, debate about adequate political and economic representation by small community and rural residents is likely to become more intense. The larger and newer population is likely to cause formal institutions and organizations to become more prevalent and relatively more important in social, political, and economic relationships.

Aside from the changes in material well being that are described in other sections of this chapter (increased employment and income, changes in facilities and services, housing availability and cost), the incremental change in demographic and social characteristics of the community due to the mines is forecast to be large enough that community-wide behavioral indicators such as crime and suicide are likely to become more similar to national averages than under baseline conditions. Other than the forecast shortages in housing (which are likely to be prevented by active intervention), the rate of change in population and the anticipated conditions within the communities are not expected to create an environment that will significantly aggravate or create social problems. These indicators are expected to be much more affected by the characteristics of the incoming population and by baseline conditions (including national trends) than by the characteristics of the communities. Project effects on perceptions of satisfaction with the community are discussed in the county and community sections that follow.

#### 10.3.4 Housing

Assuming no expansion of existing builder capacities, or participation by outsiders, under the cumulative scenario, large housing deficits would occur in both Big Horn and Sheridan counties. In Big Horn County, the housing deficits would begin in 1987 at about 40 units and grow to about 113 units in 1998. The housing deficits would then begin to decline as local builders begin to catch up with demand and would



decrease to 89 units by the year 2000. In Sheridan County, housing deficits are forecast to occur between 1986 and 1991 and again in 1998 and 1999. The largest deficit would be 903 units in 1987.

It is highly probable that some of these forecast deficits will be prevented by expansion of local contractors' capacities and by the participation of Billings contractors in the case of Big Horn County. However, if local suppliers of housing do not expand their capacity to meet local demand, and if they are not supplemented by nonlocal or Crow Indian builders and/or developers, then the forecast deficits are likely to occur. These deficits could cause housing prices to escalate and reduce both existing residents' and newcomers' choices of housing price and type. In particular, escalating housing prices have been known to adversely affect low and fixed income groups.

Two other factors should be considered when evaluating the capability of local builders and developer to meet housing demand that is stimulated by energy development. First, even when local suppliers have the capacity to meet expanding housing needs, they can still have trouble obtaining construction financing from private lending institutions that perceive additional risk in lending to energy boom areas. Although this type of problem is not currently affecting study region builders, it could become more important if national housing demand increases and lending institutions have more abundant, less risky opportunities to make construction loans in other areas.

Second, even when financing is available to support local builders and developers, housing construction is likely to lag behind demand during rapid growth. Although local bankers and government agencies have had enough experience with housing development to assure prompt responses to new housing plans, builders and developers require adequate market information and must have confidence in the housing demand projections before they will undertake construction in anticipation of demand.

#### 10.3.5 Facilities and Services

Because no facilities or services are provided on the regional level, facilities/services impacts are presented below under jurisdictional headings.

#### 10.3.6 Fiscal

The revenues that would accrue to Montana and royalties that would accrue to the federal government under the cumulative scenario were described in Section 4.3.6. Other fiscal impact forecasts for counties, cities, and jurisdictions are presented below.

#### 10.3.7 Transportation

Maximum impacts on rail and road transportation modes would occur under the cumulative scenario. These impacts would be due to (1) cumulative increases in rail traffic, (2) construction of the Youngs Creek rail spur, (3) cumulative increases in road traffic, and (4) construction of a new road on the Crow Reservation along the Owl Creek drainage. The peak cumulative impacts would be due as well to the overlap between construction- and operations-related traffic for the three mines -- particularly on the road network. This is different from the site-specific impacts of each mine, where the operating phase tended to follow the construction phase, rather than overlap it.

#### 10.3.7.1 Rail

Unit train coal shipments from the proposed Decker area mines would exhibit the pattern shown in tables 4.3.7.1-1 and 4.3.7.1-2. Under the worst case, peak increases would occur from 1997 to 2013 on the Huntley to Sheridan line and from 1996 to 2006 on the Sheridan to Clearmont line (assuming that coal from the Consol Mine was routed south) with fifty-four and twenty-two trains each direction per week, respectively. These flows would represent increases of roughly 65 percent over the baseline forecasts. The consequent increase in traffic on BN's east-west mainline in Montana would be greater -- approximately 150 percent at peak. These increases would represent significant at-grade crossing delays of thirty to eighty minutes per day through Big Horn County and twelve to thirty minutes on the Sheridan-Clearmont line.

The impacts of rail spur construction have been discussed in previous sections.

#### 10.3.7.2 Road

The cumulative impact of the development of the three proposed actions (including expansions) will be addressed by the Montana Department of Highways for nonreservation roads. For reservation roads, the primary impacts would be traffic congestion-related (greater travel time and increased accidents, for example) on the proposed Owl Creek road. Assuming two workers per vehicle, commuter traffic from the Crow Reservation alone would reach a peak ADT of nearly 440 vehicles in 1997 and remain above 330 vehicles for the period 1998-2013. If the road is constructed to good standards, commercial traffic representing 10 to 20 percent of this base would likely also be present, as would other traffic between Hardin, Billings and the existing Decker area mines. Due to interest in the mining operations, as well as in the Crow Reservation, a certain amount of tourist traffic would be expected on the new road between Sheridan and Lodge Grass. In total, a peak average annual ADT of 600 to 700 vehicles would be experienced in 1997, with levels in the range of 400 to 500 vehicles during 1998-2013.

The Owl Creek road would have at least two tangible benefits. First, it would make the Decker area mines, particularly Youngs Creek, much more accessible to potential Crow mine workers. Table 10.3.7.2-1 summarizes the shorter commuting distances that residents at Crow Agency and Lodge Grass would realize due to a new road. The second benefit would be transportation cost and time savings due to the shorter route to Decker from the northwest. While the quantification of these road user savings, based upon the much shorter route, is beyond the scope of this study, they would be significant.

In contrast to the rapid traffic growth on the Owl Creek road, commuters from the Northern Cheyenne Reservation to the Decker area would reach a maximum of 26 by 2000. This peak figure translates into an ADT of 26 -- an increase of approximately 20 percent over baseline levels. This is not a significant increase in traffic and cannot be expected to produce important impacts.

#### 10.3.8 Outdoor Recreation

Under the cumulative scenario, demand for outdoor recreation in Sheridan County (in recreation days) for the years 1990, 2000, and 2010 would increase 17 percent, 25 percent, and 22 percent, respectively. By 2015, recreation demand in Sheridan County would drop to 12 percent above the baseline level. The 25 percent increase over baseline in 2000 reflects a wide range of recreation visitor days (RVDs) per activity. The most popular activity, camping, would have 436.5 thousand RVDs over baseline under this scenario. The second and third most popular activities would be picnicking and fishing with 359.6 and 363.9 thousand RVDs per year, respectively. The least popular activity, river floating, would be 25.2 thousand RVDs above baseline in 2000.

TABLE 10.3.7.2-1

Decker Area Mines: Effect of Lodge Grass to  
Youngs Creek Road on Commuting Distances

Itinerary	Oneway Distance (miles)		
	Without New Road	With New Road	Difference
Crow Agency - Decker	75 <sup>a</sup>	45	-30
Crow Agency - Busby-Decker	69	69	0
Lodge Grass - Decker	55 <sup>a</sup>	25	-30
Crow Agency - Sheridan	70	35	-35
Youngs Creek - Sheridan	na	25	na
Busby - Decker	45	45	0
Busby - Youngs Creek	55	55	0
Lame Deer - Decker	61	61	0
Lame Deer - Youngs Creek	71	71	0

Source: Mountain West Research-North, Inc., 1982. Based upon assumed new road constructed from Lodge Grass to the Youngs Creek Mine and connecting with U.S. 87 in Wyoming.

Note: na = not applicable.

<sup>a</sup>via I-90 and Ranchester.

In Big Horn County, the increase would be substantially lower, approximately 2 percent over baseline per activity in 1990, 2000, and 2010 (see tables 4.3.8-1 and 4.3.8-2). As an example, this 2 percent increase would only constitute a 17.5 thousand RVD increase over baseline for the most popular activity, fishing, in the year 1990.

Although the increases over baseline in Sheridan County are substantial, it is impossible to evaluate their effects on a site-by-site basis. There is no way of knowing exactly where the recreationists will go, at what times of year or week. In addition, an objective determination of the recreational carrying capacity of any site continues to pose theoretical and practical problems to researchers and managers alike. However, it is likely that new residents would have site preferences similar to those of current residents: that is, they would concentrate along major thoroughfares with easy accessibility; stay close to home; and frequent developed sites.

As discussed in Section 4.3.8, there are many sites which are already affected by population pressures; to include, crowding and environmental degradation. Certainly, the increases in activity RVDs under the cumulative scenario would pose additional site-specific problems for resource managers if the uneven distribution of recreationists by area and time could not be controlled through the implementation of new management strategies. Distribution strategies are already in effect or under consideration by certain management agencies as it is clear that the total capacity of the regional resources is well above current and projected use.

#### 10.3.9 Land Use

This section describes the cumulative impact of the proposed mining projects on urban residential, rural residential, and commercial land uses for Big Horn and Sheridan counties (see Table 4.3.9.2-1). The cumulative scenario represents land use impact and acreage needs that are generally greater than those for any of the individual mine scenarios. Also included here is a discussion of the potential effects of increased mining and population on property values.

##### 10.3.9.1 Big Horn County

The demand for urban residential land in the cumulative scenario plateaus at five acres through the early 1990s. In the years 1997 and 1999, demand reaches a peak of eleven acres (3 percent over baseline). Demand for urban residential acreage remains high (near ten acres) through the year 2015 when it would drop back to five acres. By 1995, the combined baseline forecast and with-project impacts would exceed the identified available urban residential lands.

As with the individual mining scenarios, acreage needs for rural residential and commercial lands could be characterized as slight (under 10 percent) when compared to the baseline forecasts for most years. In the year 2000, the peak need for rural residential land would be only 8 percent over baseline, while the peak demands for commercial land in the year 2010 would be 15 percent over baseline before dropping sharply to less than 3 percent in the year 2015.

The construction of the Lodge Grass to Sheridan road will create a new transportation corridor in a currently rural setting. At this time it is not known what consequences this will have for land use along the corridor, although it is quite likely that the increased accessibility will result in some land use changes (in addition to increased trespass and littering). These forecast changes would not be in conflict with the goals of the county land use plan.



#### 10.3.9.2 Sheridan County

Characteristic of the pattern of demand for all land types, the demand for urban residential land due to proposed projects peaks in the year 2000 at 608 acres, then subsides to much lower levels by the end of the forecast period. The peak represents land needs 26 percent above baseline conditions and exceeds the capacity of existing lands by 8 percent. (See Section 4.3.9.3 for a discussion of mitigating factors.)

The cumulative forecast shows that a peak of 479 acres over baseline levels are needed for rural residential use in the year 2000, an increment of 12 percent. From this temporary peak, project-related demand is forecast to decrease to 231 acres by 2015.

Businesses and other commercial establishments spurred by increased employment would require additional land under the cumulative scenario. Demands for commercial land would rise in the late 1980s and reach their limit by the year 2000 when twenty-seven acres would be needed to supplement baseline acreages. This represents a 17 percent increase. Incremental project demand is forecast to all but disappear by 2015 when a two-acre need is projected. These forecast changes would not be in conflict with the goals of the county land use plan.

#### 10.3.9.3 Land Value Effects

To address the likely consequences of the proposed mine activities on the value of land adjacent to or in the vicinity of the proposed projects, a search was conducted for research that addressed these types of effects. Environmental specialists, agricultural economists, soil scientists, reclamation specialists, and land assessors were interviewed. Based on this research, an analytic framework was developed that identified the mechanisms by which land value effects could occur. Two principal mechanisms were identified:

- 1) Effects that change the "highest and best" use of the land from one category to another (for example, from agriculture to mining)
- 2) Effects that change the value of the land in its existing use

The factors that would cause these types of changes are outlined below. Due to the limited data available and the scope of work for this topic, no conclusive results can be reported. A substantially more extensive and rigorous research effort would be required to quantify the extent to which each of the following changes would result from the construction and operations of a strip mine in the Decker environment.

##### Change in value due to change in use

In economic terms, the value of land is generally considered to be based on the present worth of its best and highest use. Coal mining activities have the potential for affecting the types of use to which land may be put, thus altering its value upward or downward, depending upon the nature of the change. In the Decker study area, such changes could be caused by a number of mechanisms:

- 1) The construction of infrastructure (roads, rail spurs) or the presence of ongoing mining activities may increase the viability for coal production of land the surface of which is currently utilized for agriculture, grazing, or other activities. This change in potential (or actual) use would dramatically increase the market value of such land.
- 2) Increased population and income in the area will create a demand for additional residential and commercial acreage. This demand may change the "best and highest" use of land from agriculture or range to those with higher-per-acre values. It is anticipated that these effects would occur most extensively in Sheridan County, where the majority of the population and economic activity from the proposed mines would be concentrated. Given the demand for housing and commercial opportunities created under the cumulative scenario, these effects are forecast to be sufficient to induce



land speculation within the region and to shift land from lower to higher value uses. Similarly, the creation of public infrastructure as an adjunct to coal development may increase the residential/commercial development potential of certain lands due to improved access or the availability of utilities, for example. At present, there are no research findings upon which one could base a prediction of land value inflation due to growth in the project area.

- 3) The expansion of mining activities could affect the land-holding patterns or soil and water characteristics in an area to the extent that the economic viability of existing land uses is adversely affected. In the Decker area, no effects of this type are anticipated; and water availability is not forecast to be affected.

Considerable research has been carried out to try to determine whether and to what extent effects due to the presence of usually intrusive projects occur. Particular attention has been given to land value effects of transmission line construction. Results to date have been contradictory and inconclusive but generally indicate a very sharp decay of any effects over distance from the project itself. From these studies, spread effects appear to be limited to properties in the immediate vicinity of the development activity (Mountain West Research-North, Inc. 1982). No information on shifts in land use in the areas proximate to the strip mines in the Decker area is available. Previous research seems to indicate that these effects are not widespread or of a significant magnitude when development occurs in a landscape such as that of the Decker area, since much of the proximate land is currently rangeland or undeveloped land. Because the permit areas of the mines and the property boundaries of the company-owned land extend substantially beyond the area actually disturbed by the project, little direct "spill-over" effect could be expected to occur with mining.<sup>1</sup>

The study of the effects of mining on net agricultural income conducted for this project found minimal loss of production or income due to the mining activity (Watts and Ingebrigtsen 1983). This loss was more than offset by increased income from mining.

#### Change in value for same use

Even if land use does not change, changing patterns of supply and demand or of land characteristics can affect the present worth or market value of property. In the Decker study area, such changes could be caused by the same mechanisms that were identified above. It is commonly acknowledged that increased demand, particularly rapidly expanding demand, can create market pressures that force up the price of subdivided, commercial, or industrial property. This price escalation can occur in anticipation of future changes in best and highest use. Land values can also rise or fall due to changes in the preference patterns of consumers. All other factors being equal, lower tax rates (of the type potentially created by high value industrial facilities) could also be expected to increase land value. Due to the relatively low tax rates in Big Horn County, this effect would not be expected to be large.

In the Decker area, as in Rosebud County, agriculturalists express concern that perceptions and fears about long-term effects of mining on air, water, and soil quality are depressing agricultural prices on property adjacent to the mining areas. In addition, residents of these areas charge that the mining activities create nuisances and diminish the aesthetic quality of the area to the extent that land values are adversely affected. This argument is related to any effects on agricultural productivity of reclaimed land compared to its pre-mining levels. No data that would verify or disprove these effects have been identified (Moore 1983).

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<sup>1</sup>This is unlike the more intrusive corridor development projects (roads, rail, and transmission lines).

### 10.3.10 Results of Special Topical Research

This section summarizes the results of several additional areas of topical research that were conducted to support the technical report. In most cases, the results are also presented in a separate research report. The purpose of these special studies was to determine and/or document the effects of coal mining and rapid population growth on: (1) cost of living, (2) agricultural and industrial wage rates, (3) industrial production and manufacturing, and (4) human health.

1) The effects of coal development and population growth on the cost of living

As part of the economic analysis, research on the cost of living effects of rapid, energy-related growth was conducted. As discussed more thoroughly in that paper, "Cost of Living and Inflation in Sheridan County, Wyoming," (Meale 1983) many residents of communities impacted by energy development are concerned about the potential for accelerated price inflation. Communities experiencing "impact" conditions are usually characterized by housing shortages, trade market isolation, underdeveloped trade and service centers, and the presence of many individuals earning high incomes. All of these factors can increase normal inflationary pressures.

Although inflationary pressures have been higher in Wyoming than in the nation due to its isolated location in terms of national trade markets, the overall inflationary effect on prices was found to average 1 percent or less during the 1970s. Sheridan, exhibiting most of the characteristics of a typical impact community during the 1970s, has had a high cost of living at times, but compared to other energy development areas in Wyoming, these effects have been moderate and the cost of living in Sheridan is close to average for the state as a whole. Based on this analysis, although prices for some goods whose supply is relatively inelastic (housing, in particular) are likely to become inflated by the increased demand that will result from the combination of population growth and high income jobs, no significant effect on the overall cost of living is anticipated even under the cumulative scenario.

2) The effects of mining and rapid population growth on agricultural and industrial wages

The results of research on agricultural wages conducted for this report are presented in a paper entitled "Mining Impacts on the Wage Rates in Other Employment Sectors" (Meale, Ingebrigtsen, and Branch 1983). As shown in the paper, no discernible impacts were observed from mining or construction wages on the wage rates in the other employment sectors. Although the research did show some high correlation between the mining wage and certain industrial sector wages, no consistent patterns across study areas could be shown.<sup>1</sup> The correlation was therefore concluded to be due to forces external to the labor markets and not attributable to mining sector effects.

3) The results of an examination of the effects of mining on industrial production and manufacturing  
These topics are presented in two papers, "Local Purchases of Decker Area Mines," (Meale 1983) and "The Effects of Mining Operations on Agriculture in the Decker Study Area" (Ingebrigtsen 1983).

The economy of Big Horn County has historically been comprised of traditional employment in agriculture and the support activities of trade, TCPU, services, and FIRE sectors. With the advent of coal mining, the employment in the county has shown modest growth in the support sectors. However, major changes in the economic structure of Big Horn County have not materialized in response to coal development, due primarily to the location of the mines and the proximity of Sheridan (where most workers resided and where most purchases by both workers and mines were made) and Billings. Consequently, Big Horn County has continued to serve the primary personal and business needs of its residents while relying on Sheridan and Billings to provide the majority of its industrial material demands and its residents' higher-order demands for goods and services.

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<sup>1</sup>Similar lack of consistent patterns were found in an analysis of 85 counties in the Northern Great Plains states (Ingebrigtsen 1982).

On the other hand, Sheridan has played a significant role in the regional economy of the area. Sheridan County has its own strong mining sector, and the county's role as the major center for mining activity in the area will tend to strengthen its position in the manufacturing, wholesale trade, finance, services, and transportation sectors during any future growth periods.

4) The effects of strip mining and rapid population development on human health

The results of a literature review on human health effects are summarized in a paper entitled "The Health-related Effects of the Mining Operations in the Decker Study Area" (Branch, Rude, and Weisbuch 1983) which examines the potential health-related impacts resulting from:

- Regional deterioration of air quality
- Local (on-site) air pollution
- Increased health service utilization that results from
  - accidents at the mine
  - highway accidents
  - routine health services
  - stress-related illness

The paper concludes that the increased mining activities were not likely to affect air quality in the multicounty region surrounding the mines to an extent that would increase health risks for the resident population. However, the literature does indicate the potential that, especially during dry periods of low wind, the deterioration of ambient air quality could pose health risks to those working at the mine.

The most significant health-related impacts of the proposed increase in mining activities and its associated population growth would be increased demand for routine health care services. The magnitude of growth and the area's previous experience with coal-related development make it unlikely that significant stress-related health effects would occur among the non-Indian residents of the study area. The literature is less clear about the potential for stress-related health effects among the area's Indian population who could be exposed to more severe cultural conflicts as a result of their participation in mining activities. (See AITS 1983.)

## 10.4 Big Horn County and Communities

### 10.4.1 Introduction

This section presents the cumulative scenario impact forecasts for Big Horn County and its nonreservation subcounty areas. Section 10.4.2 presents the impact forecasts for the county. Section 10.4.3 presents the forecasts for Hardin and the Hardin area. Section 10.4.4 presents the cumulative scenario impact forecasts for the Decker/Spring Creek area. Subsequent sections discuss the impact forecasts for the Crow and Northern Cheyenne Indian Reservation.

#### 10.4.2.1 Population and Economy

As shown in Table 10.4.2.1-1, the population effects of the cumulative scenario in Big Horn County would begin in 1985 and last through 2015. Total incremental population (over baseline) would begin at 4 people in 1986 and increase to 239 people by 1988. Population effects from the proposed mines would then fluctuate between 210 and 240 through 1995 before increasing to 339 people in 2000 and then decreasing to 296 people by 2010 and 161 people by 2015. In 2000, the project-related population would increase county population by 2.3 percent.

As shown in Table 10.4.2.1-2, total incremental employment due to the cumulative scenario is forecast to be 51 workers in 1985, rising to 678 workers in 1988, and then remaining relatively constant at about

Table 10.4.2.1 - 1  
Cumulative Scenario Impacts  
Population  
Bis Horn County

Year	Total Population	Births	Deaths	Employment- Related Migration	Non-employment Related Migration	Total Change
1980	0	0	0	0	0	0
1981	0	0	0	0	0	0
1982	0	0	0	0	0	0
1983	0	0	0	0	0	0
1984	0	0	0	0	0	0
1985	4	0	0	4	0	4
1986	49	0	0	44	0	44
1987	173	0	0	124	0	124
1988	239	3	0	62	0	65
1989	235	5	0	-8	0	-4
1990	212	4	0	-26	0	-22
1991	215	4	0	0	0	3
1992	219	4	0	1	0	4
1993	221	3	0	-1	0	1
1994	222	3	0	-1	0	1
1995	223	3	0	-1	0	1
2000	339	5	1	-15	0	-12
2005	338	4	2	-10	0	-9
2010	296	2	2	0	0	0
2015	161	1	1	0	0	0

Source: Mountain West Research - North, Inc., December, 1982

Note: Details may not sum due to rounding.

All values except total population represent annual changes.



Table 10.4.2.1 - 2  
Cumulative Scenario Impacts  
Total Employment by Sector  
Big Horn County

Year	As Proprietors	As Labor	As Mining	Con struction	Manu facturing	TCPU	Trade	FIRE	Ser vices	Gov ernment	Other +com.	Total
1980	0	0	0	0	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0	0	0	0	0
1984	0	0	0	0	0	0	0	0	0	0	0	0
1985	0	0	0	27	0	1	8	1	5	7	0	51
1986	0	0	27	121	2	5	32	6	29	32	0	259
1987	0	0	94	189	3	7	41	8	59	47	0	452
1988	0	0	236	212	3	6	38	8	112	60	0	678
1989	0	0	291	45	2	6	34	7	110	57	0	556
1990	0	0	307	38	2	6	35	7	130	64	0	592
1991	0	0	307	38	2	6	35	7	130	64	0	592
1992	0	0	307	38	2	6	35	7	130	64	0	593
1993	0	0	307	38	2	6	35	7	130	64	0	593
1994	0	0	307	38	2	6	35	7	130	64	0	593
1995	0	0	307	38	2	6	35	7	130	64	0	593
2000	0	0	482	71	4	9	56	12	240	111	0	989
2005	0	0	506	72	3	9	55	10	245	114	0	1026
2010	0	0	481	71	3	8	50	10	232	106	0	978
2015	0	0	146	20	2	4	25	7	62	37	0	304

Source: Mountain West Research - North, Inc., December, 1982

Note: Details may not sum due to rounding.



593 workers through 1995. Thereafter, the employment effects of the proposed projects would increase to 1,026 workers in 2005 and decline to 304 workers by 2015. As shown in the table, the largest employment increases are forecast to occur in the mining and construction sectors, which in turn stimulate employment in the other sectors.

As shown in Table 10.4.2.1-3, the employment impacts noted above would be almost evenly divided between basic and nonbasic jobs throughout the forecast period.

Table 10.4.2.1-4 presents the income effects that are forecast to occur under the cumulative scenario. As shown, the total personal income that would accrue to Big Horn County residents in the cumulative scenario begins at \$1.1 million per year in 1985 and grows to \$41.1 million by 2010. Under the cumulative scenario, per capita personal income in 1990 would increase from \$6,325 (baseline) to \$7,863, a difference of \$1,538 or 24.3 percent. In 2000, the difference between per capita income in the cumulative and baseline scenarios is forecast to be \$2,574. In 2010, project-related effects are forecast to have fallen to \$2,315. The magnitude of the per capita income effects illustrates the consequences of increased employment in relatively high-wage jobs without a significant increase in county population. It should be noted that these figures do not include dividend payments from Crow coal royalties or from a possible Crow severance tax, effects that could vary substantially depending upon legal decisions and Crow tribal policies.

#### Commercial opportunities

As shown in Table 10.4.2.1-5, the cumulative scenario would add only enough people to Big Horn County to increase the forecast of gas stations, eating and drinking places, and hotels, motels, and campgrounds by one opportunity each. It should be noted, however, that the approach used to forecast commercial opportunities is sensitive to change in population but is insensitive to change in total disposable income. Consequently, the significantly increased per capita incomes forecast under the cumulative scenario may make these estimates conservative.

#### 10.4.2.2 Social Life and Cultural Diversity

In Big Horn County as a whole, the incremental population effects of the cumulative scenario activities (over baseline changes) will be minimal. Most of the population impacts will be concentrated in the Decker-Sheridan area, with the major county-wide consequences being a slight change in economic structure (primarily an exaggeration of existing characteristics), increased property and royalty tax revenues to the county and the Crow Tribe, and substantially increased per capita income levels (due primarily to the improved employment status of the Crow and the expected increase in dividend payments). Since the great majority of the workers at the mine are expected to reside in Sheridan County, the project will have less significant effects on the population size, demographic characteristics, or the demands or responsibilities of the county government in Big Horn County. Occupational characteristics of residents on the Crow Reservation and in the Decker area are forecast to change, as residents of these areas obtain project-related jobs. The consequences of the increased employment and income of the Crow, increased tribal revenues, increased county revenues, and continued transformation of the Decker/Spring Creek area will place countervailing pressures on county integration and coordination. Disposition of the increased revenues and residents' perceptions of their voice in and influence on the county decision-making process will affect residents' sense of participation and attachment to the area and the county. Increased revenues and income, along with potential assistance from the Montana Coal Board, may increase county and community resources and public services, although the county is not forecast to substantially alter its dependence upon Billings and Sheridan, or to significantly diversify its local economies.

Table 10.4.2.1 - 3  
Cumulative Scenario Impacts  
Employment by Type  
Big Horn County

Year	Total	Non Basic	Basic Total	Non Project	Indirect Basic	Basic Project O&M	Project Construction-Perm	Project Construction-NLoc.
1980	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0
1984	0	0	0	0	0	0	0	0
1985	51	25	25	0	0	0	22	2
1986	259	118	141	0	0	27	101	11
1987	452	184	267	0	0	94	100	11
1988	678	263	415	0	0	236	173	5
1989	556	251	305	0	0	291	12	0
1990	592	284	307	0	0	307	0	0
1991	592	284	307	0	0	307	0	0
1992	593	285	307	0	0	307	0	0
1993	593	285	307	0	0	307	0	0
1994	593	285	307	0	0	307	0	0
1995	593	285	307	0	0	307	0	0
2000	989	506	483	0	1	482	0	0
2005	1026	517	507	0	0	507	0	0
2010	978	496	481	0	0	481	0	0
2015	304	158	146	0	0	146	0	0

Source: Mountain West Research - North, Inc., December, 1982

Note: Details may not sum due to rounding.

"Basic project O & M" and "Indirect Basic" represent direct and indirect basic coal mining employment, respectively. No mines are assumed to operate in 2015.

Table 10.4.2.1 - 4  
Cumulative Scenario Impacts  
Personal Income  
Bis Horn County  
(Thousands of 1980 Dollars)

Year	Total Labor Income	FICA Payments Payments	Non-labor Income	Residency Adjustment	Total Personal Income	Personal Income Per Capita
1980	0	0	0	0	0	0
1981	0	0	0	0	0	0
1982	0	0	0	0	0	0
1983	0	0	0	0	0	0
1984	0	0	0	0	0	0
1985	1144	89	124	0	1179	NC
1986	5996	467	735	0	6263	NC
1987	10823	843	1479	0	11459	NC
1988	18524	1444	2811	0	19891	NC
1989	17882	1394	2741	0	19230	NC
1990	20928	1631	3257	0	22553	1538
1991	20931	1631	3261	0	22561	NC
1992	20934	1632	3267	0	22569	NC
1993	20936	1632	3272	0	22577	NC
1994	20938	1632	3278	0	22584	NC
1995	20945	1632	3284	0	22596	NC
2000	38145	2973	6049	0	41221	2574
2005	39211	3055	6261	0	42416	NC
2010	38014	2962	6138	0	41189	2315
2015	10807	842	1706	0	11671	558

Source: Mountain West Research - North, Inc., December, 1982

Note: Details may not sum due to rounding.

The personal and per capita income figures do not include Crow dividends from royalties and a possible Crow severance tax.

NC means not calculated.

TABLE 10.4.2.1-5

Commercial Opportunities  
Cumulative Scenario  
Big Horn County, Montana  
2000

Type of Commercial Opportunity	With Project	Baseline	Impact
<u>Retail</u>			
Gasoline Service Station	26	25	1
Eating and Drinking Place	35	34	1
Grocery and Other Food Store	12	12	0
Motor Vehicle Dealers and Auto Supply Store	10	10	0
Clothing and Shoe Store	9	9	0
Lumber, Hardware, and Mobile Home Dealers	11	11	0
Furniture and Household Appliance Stores	3	3	0
Department Stores	2	2	0
Drug, Variety, General Merchandise Stores	14	14	0
Sporting Goods, Hobby, Flowers, Gift, Sewing Stores	13	13	0
Liquor Store	5	5	0
Jewelry Store	4	4	0
Book Store and Newstands	1	1	0
<u>Service</u>			
Hotels, Motels, Commercial Campgrounds	28	27	1
Beauty and Barber Shops	15	15	0
Auto Repair Shops	15	15	0
Legal, Accounting, Advertising, Data Processing	28	28	0
Engineering, Architecture, Surveying	7	7	0
Equipment and Auto Renting and Leasing	5	5	0
Laundries	5	5	0
Appliance, Furniture, and Shoe Repair	7	7	0
Movie Theatres and Bowling Alleys	4	4	0
Janitorial Services	6	6	0
Photographic Studios	3	3	0
Car Washes	2	2	0
Funeral Services	1	1	0
<u>Finance and Real Estate</u>			
Real Estate Office	13	13	0
Insurance Agencies	6	6	0
Personal Credit Institution	3	3	0
Commercial Bank	3	3	0
Savings and Loan Association	0	0	0
<b>TOTAL</b>	<b>301</b>	<b>298</b>	<b>3</b>

Source: Mountain West Research-North, Inc., 1982.

Note: Forecast population in 2000: 15,305.

As described in Section 4.4.2.2, a key element in the social organization of Big Horn County will be the nature of the emerging relationships between the outlying portions of the county (including the Decker area), the tribal governments of the Crow and the Northern Cheyenne, and the city of Hardin. The unclear and contested jurisdictional relationships in Big Horn County provide opportunity for conflict, particularly as decisions regarding the allocation of increasing resources must be made. The new mines are expected to further complicate the already complicated social and political relationships in Big Horn County. An important variable will be Crow response to the increased political power, employment, and income resulting from the new mines (see AITS 1983) as this group and the Decker area residents are the ones forecast to be directly affected by the proposed projects.

#### 10.4.2.3 Housing

As shown in Table 10.4.2.3-1, housing deficits under the cumulative scenario in Big Horn County are forecast to occur between 1987 and 2015 and peak at 115 housing units, of which 113 represent project-related demand (the remaining 2 unit deficit occurs in the baseline). More detail on the cumulative scenario's impact on housing demand in the subcounty areas of Big Horn County is provided in subsequent sections. The housing demand forecasts by type of unit for each area under the cumulative scenario are summarized in Appendix B tables. These forecasts do not account for the effect of increased income on housing demand, which is discussed more fully in Section 2.3.3.

#### 10.4.2.4 Facilities and Services

The cumulative impact projections assume that KME, Consol Level 2, and Youngs Creek alternatives will be operating concurrently. Under this scenario, incremental population peaks for the period 2000-2010. The projected increment is 339 in 2000; 338 in 2005. The peak increment decreases to 296 in 2010 and to 161 in 2015. The 2000 cumulative increment is 2.3 percent higher than baseline. Over the entire projection period, 1982-2015, the baseline population increases 43.6 percent, from 12,421 to 17,843 persons; the cumulative scenario population results in a 44.9 percent population increase over the same period. The difference between the cumulative and baseline projections is not great enough to cause any major impacts on Big Horn County's facilities and services. (See Appendix C.)

#### 10.4.2.5 Fiscal

As a result of the mines, the county benefits from an increase in its taxable value that peaks at \$306 million over the baseline values in 2002. Since the population impacts from the mines are very small, the expenditures projected for this alternative are basically identical to those in the baseline. Utilizing forecast assumptions described in Chapter 2, this results in a cumulative surplus of nearly \$138 million by 2005. As the mining alternatives are phased out, the taxable value of the county drops, and the county's fiscal position becomes less positive. By 2015, utilizing the assumptions described in Chapter 2, yearly deficits are forecast for the county. (See Table 10.4.2.5-1.)

#### 10.4.2.6 Schools -- Facilities/Services and Fiscal

##### Facilities and services

The personnel and capital facilities projections for the cumulative scenario are based upon levels of demand associated with student enrollments, which are derived from school-age populations. Tables 4.4.2.6-2 and Appendix D present the student enrollment data from which the school requirements are derived.



TABLE 10.4.2.3-1

Cumulative Scenario Forecast  
Housing Unit Demand/Supply  
Big Horn County

Year	Total Demand	Incremental Demand Over Previous Year	Local Supply Response (Limit = 40)	Cumulative (Deficit) Surplus	Baseline (Deficit) Surplus	(Deficit) Surplus Attributed to Projects
1980	2,601					
1981	2,613	12	12	0	0	0
1982	2,604	-9	3	9	9	0
1983	2,453	12	12	0	0	0
1984	2,630	14	14	0	0	0
1985	2,653	23	23	0	0	0
1986	2,696	43	40	3	0	3
1987	2,773	77	40	(40)	0	(40)
1988	2,830	57	40	(57)	0	(57)
1989	2,848	18	40	(35)	0	(35)
1990	2,931	83	40	(78)	0	(27)
1991	2,951	20	40	(58)	(51)	(39)
1992	3,017	66	40	(84)	(19)	(42)
1993	3,047	30	40	(74)	(42)	(44)
1994	3,075	28	40	(62)	(30)	(46)
1995	3,115	40	40	(62)	(16)	(47)
1996	3,160	45	40	(67)	(15)	(63)
1997	3,234	74	40	(101)	(4)	(101)
1998	3,288	54	40	(115)	0	(113)
1999	3,306	18	40	(93)	(2)	(93)
2000	3,342	36	40	(89)	0	(89)
2005	3,454	112 for 5 years	200 for 5 years	(1)	0	(1)
2010	3,616	162 for 5 years	163 for 5 years	0	0	0
2015	3,740	124 for 5 years	124 for 5 years	0	0	0

Source: Mountain West Research-North, Inc., 1982.

Note: Includes non-Indian population and Crow Indians in Hardin.

TABLE 10.4.2.5-1

Fiscal Summary: Cumulative Scenario  
Big Horn County  
(1982 \$000)

Fiscal Summary	1982	1983	1984	1985	1986	1987	1988	1989	1990	1995	2000	2005	2010	2015
Revenues Total	5,483	5,663	5,577	6,544	7,746	10,035	11,194	12,542	13,385	14,974	18,097	15,297	15,405	7,120
Expenditures														
O&M	6,065	6,190	6,249	6,321	6,410	6,537	6,630	6,688	6,813	7,175	7,558	7,936	8,191	8,276
Capital	3,180	388	300	300	300	300	300	397	300	300	300	322	300	300
Debt Payment	970	350	350	350	350	350	350	350	350	350				
TOTAL	10,604	6,928	6,899	6,971	7,060	7,187	7,280	7,434	7,463	7,825	7,858	8,258	8,491	8,576
Fiscal Balance -- Alternative														
Annual	-1,266	-1,266	-1,322	-427	686	2,848	3,915	5,108	5,922	7,148	10,239	7,038	6,914	-1,474
Cumulative	-1,266	-1,266	-2,587	-3,014	-2,328	520	4,434	9,542	15,464	45,702	90,690	137,801	NF	NF
Fiscal Balance -- Baseline														
Annual	-1,249	-1,249	-1,322	-747	-265	308	361	455	488	670	-23	-2,573	-2,732	-4,447
Cumulative	-1,249	-1,249	-2,571	-3,318	-3,583	-3,274	-2,913	-2,458	-1,970	1,441	3,805	-94	NF	NF

Sources: Briscoe, Maphis, Murray, and Lamont, Inc.; B.Y. Analytics, 1983.

Notes: Details may not sum due to rounding. NF = not forecast. Because of limitations in the size of the computer model used to project population, it was possible to make annual projections through 2005. Thereafter only the single years 2010 and 2015 were projected. Therefore, it was not possible to compute cumulative fiscal results for years following 2005. The large net deficits shown in this table result from the methodology used (see Section 2.3.4). In actuality, such deficits would not be allowed to occur -- government officials would either find additional sources of revenues and/or reduce expenditures.

Under the cumulative scenario, student enrollments are identical to baseline levels in all public school jurisdictions except High School District No. 1 (Hardin), Elementary School District No. 17H (Hardin and Crow Agency), and Elementary School District No. 1 (Squirrel Creek). Of these jurisdictions, only the Squirrel Creek School shows significant incremental enrollment due to the proposed projects.<sup>1</sup>

For Elementary School District No. 1 (Squirrel Creek), the cumulative scenario forecasts a student enrollment of 20 students in the mid-term (compared with a student enrollment of ten students for the baseline scenario) and an enrollment of 30 students in the long term (compared with ten students for the baseline scenario). The difference in student enrollment between the cumulative and baseline scenarios is thus 20 students, an increase of 200 percent over current levels.

At the Squirrel Creek School in Decker, total with-project requirements for teachers increases from one to two teachers (100 percent) by 1995 with a further increase to three teachers (200 percent) by 2015. The requirements for space (sq. ft.) increase above current levels by an estimated 80 percent in the mid-term and an estimated 120 percent in the long-term. (See Table 4.4.2.6-3.)

### Fiscal

This section discusses the fiscal conditions of the Big Horn County school districts under the cumulative scenario. Because Big Horn County would receive little population impact from the proposed actions the change in enrollments for each district are slight (see above). For this reason, the fiscal conditions of the districts in the cumulative scenario would be nearly identical to the conditions for the baseline scenario, (see Section 4.4.2.5) except as noted below for the school foundation program and Elementary School District No. 1.

A key component of the county school finance conditions is the state school equalization program. As discussed in Section 3.3.2.6, the state school foundation program forms the basis for revenue generation for the districts. Big Horn County, which has historically been a net contributor to the state foundation program, is likely to continue as a net contributor to the state throughout the major portion of the forecast period. Table 10.4.2.6-1 presents the forecasted net contribution to the state program that would result from both the high school and elementary districts' mandatory levies. As seen in this table, in constant 1982 dollars, the surplus in foundation money produced by the county is expected to increase from \$1.66 million in 1982 to a maximum of \$15.0 million in 2000. The net increase, over baseline, of the contribution to the state is forecast to increase from 0 in 1982 to a peak of \$11.8 million in 2000 and then decline to \$3.49 million by 2015.

Elementary District No. 1 -- revenue forecast. Table 10.4.2.6-2 presents the district revenue forecasts for the cumulative scenario. Total district revenues are forecast to increase from \$105,000 in 1982 to \$367,000 in 2015, an increase of 250 percent. General fund revenues are expected to increase from \$56,000 in 1982 to \$196,000 in 2015. Cash reappropriated money would be the dominant general fund revenue source for the district, contributing about 53 percent of the general fund revenues. The transportation fund revenues are forecast to increase from \$37,000 in 1982 to a high of \$131,000 in 2015. The retirement fund and other fund revenues are expected to peak at \$26,000 and \$14,000, respectively, in 2015. The net

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<sup>1</sup>For the high school in Hardin, student enrollment in the cumulative scenario in 1995 is 460 students compared to a baseline level of 450 students (a difference of approximately 2.2 percent), while by 2015, student enrollment is identical under both the cumulative and baseline scenarios. For the elementary schools in Hardin and Crow Agency, student enrollments are identical for the cumulative and baseline scenarios in the mid-term projections. In the long-term projections, the baseline scenario shows student enrollments that are approximately 1 percent higher than the student enrollments of the cumulative scenario (1360 and 1340 students, respectively).

TABLE 10.4.2.6-1

Net Contribution to State Foundation Program  
Cumulative Scenario  
Big Horn County  
(1982 - 2015  
(1982 \$000)

Year	Elementary			High School			Total Surplus	Net Change Over Baseline
	Revenue	Expend.	Net Surplus	Revenue	Expend.	Net Surplus		
1982	\$3,095	\$2,139	\$956	\$1,857	\$1,152	\$705	\$1,661	\$0
1983	3,028	2,151	877	1,817	1,094	723	1,600	0
1984	2,958	2,184	774	1,775	1,023	752	1,526	0
1985	3,635	2,247	1,388	2,181	995	1,186	2,574	367
1986	4,478	2,264	2,214	2,687	1,004	1,683	3,897	1,099
1987	6,089	2,310	3,779	3,653	1,020	2,633	6,412	2,956
1988	6,901	2,347	4,554	4,140	1,035	3,105	7,659	4,142
1989	7,853	2,411	5,442	4,712	1,012	3,700	9,142	5,404
1990	8,433	2,465	5,968	5,060	1,013	4,047	10,015	6,274
1995	9,507	2,517	6,990	5,704	1,189	4,515	11,505	7,468
2000	11,671	2,426	9,245	7,003	1,221	5,782	15,027	11,833
2005	9,613	2,458	7,155	5,768	1,176	4,592	11,747	11,084
2010	9,648	2,565	7,083	5,789	1,152	4,637	11,720	11,105
2015	3,714	2,753	961	2,228	1,235	993	1,954	3,490

Source: Mountain West Research-North, Inc., 1983.

TABLE 10.4.2.6-2

Revenue Forecasts for Elementary School District No. 1  
 Cumulative Scenario  
 Big Horn County  
 1982-2015  
 (1982 \$000)

Year	District Levy	County Equal	Cash Reup	Total	Trans. Total	Retirement Total	Other Total	Grand Total	Net Change Over Baseline
1982	\$12	\$14	\$30	\$56	\$37	\$8	\$4	\$105	\$0
1983	12	14	30	56	37	8	4	105	0
1984	14	16	33	63	42	8	4	117	0
1985	14	16	33	63	42	8	4	117	0
1986	20	23	48	91	61	12	6	170	53
1987	30	36	74	140	94	19	10	263	146
1988	30	36	74	140	94	19	10	263	119
1989	32	38	78	148	98	20	10	276	132
1990	32	38	78	148	98	20	10	276	132
1995	35	41	85	161	108	22	11	302	145
2000	35	41	85	161	108	22	11	302	171
2005	35	91	85	161	108	22	11	302	185
2010	39	47	96	182	122	24	13	341	210
2015	42	50	104	196	131	26	14	367	223

Source: Mountain West Research-North, Inc., 1983.



change in district revenues over the baseline is forecast to increase from \$0 in 1982 to \$223,000 by 2015. This increase is due to an increase in students, which translates directly into greater revenues, given the funding mechanisms for school districts in Montana.

Expenditure forecasts. Table 10.4.2.6-3 presents the forecast district expenditures for the cumulative scenario. In constant 1982 dollars, total spending is expected to increase from \$105,000 in 1982 to a high of \$366,000 in 2015. General fund expenditures are forecast to increase from \$56,000 in 1982 to \$146,000 in 2015, an increase of 250 percent. Transportation and other spending would increase from \$37,000 and \$4,000, respectively, to \$131,000 and \$13,000, respectively, over the period. The change in expenditure over the baseline is forecast to increase from \$0 in 1982 to \$223,000 by 2015. The expenditure increase is due to an increase in the number of students from the proposed projects.

Fiscal balance. Table 10.4.2.6-4 presents the net fiscal balance of the district for the forecast period. The district would operate in balance throughout the period. The positive balances in 1989, 1990, 2010, and 2015 are due primarily to rounding of revenues and expenditures.

Capital. The district would require a small addition to its capital facilities during the forecast period. It is projected that in 2009, an addition of 1,200 sq. ft. to the facilities would cost \$72,000. This amount could be raised through bonding; the district would at that time have a bonding capacity of \$87.7 million. A levy of one mill would enable the district to pay for this addition in one year. In 2009, a single mill would raise about \$88,000.

### 10.4.3 Hardin and Hardin Area

#### 10.4.3.1 Introduction

This section presents the cumulative scenario impact forecasts for Hardin and the Hardin area. Section 10.4.3.2 presents the population and economic forecasts for each area. Section 10.4.3.3 discusses social life in Hardin and the Hardin area under the cumulative scenario. The housing impact forecasts are presented in Section 10.4.3.4. Finally facilities/services and fiscal impact forecasts are presented in sections 10.4.3.5 and 10.4.3.6, respectively.

#### 10.4.3.2 Population and Economy

As shown in Table 10.4.3.2-1, population effects in Hardin under the cumulative scenario would begin in 1986 at the beginning of the KME, Consol, and Youngs Creek construction periods and increase steadily to 122 people in 1998 before declining to 47 people by 2015. The population impacts in the Hardin north area would follow a similar pattern, but increase to a maximum of 35 people in 1998.

Because most of the operations employment at the mines included in the cumulative scenario is expected to be local workers from Sheridan County and the Crow and Northern Cheyenne Reservations, the cumulative scenario would not have any noticeable impact on either non-Indian employment and income in Hardin and the Hardin north area nor on Crow Indian population, employment, or income in Hardin.

#### 10.4.3.3 Social Life

The effects of the new mines on the Hardin community will be primarily indirect, occurring through changes in county resources and in the interaction patterns of its residents. In general, the new mines

TABLE 10.4.2.6-3

Expenditure Forecasts for Elementary School District No. 1  
 Cumulative Scenario  
 Big Horn County  
 1982-2015  
 (1982 \$000)

Year Year	General Fund Exp.	Trans. Fund Exp.	Retirement Fund Exp.	Exp.	Total	Net Change Over Baseline
1982	\$56	\$37	\$8	\$4	\$105	\$1
1983	56	37	8	4	105	1
1984	63	42	8	4	117	0
1985	63	42	8	4	117	0
1986	91	61	12	6	170	27
1987	140	94	19	10	263	120
1988	140	94	19	10	263	120
1989	147	98	20	10	275	132
1990	147	98	20	10	275	132
1995	161	108	22	11	302	145
2000	161	108	22	11	302	171
2015	161	108	22	11	302	185
2010	182	122	24	12	340	209
2015	196	131	26	13	366	223

Source: Mountain West Research-North, Inc., 1983.

TABLE 10.4.2.6-4

Net Fiscal Balance for Elementary School District No. 1  
 Cumulative Scenario  
 Big Horn County  
 1982-2015  
 (1982 \$000)

Year	Revenues	Expenditures	Balance
1982	\$105	\$105	\$0
1983	105	105	0
1984	117	117	0
1985	117	117	0
1986	170	170	0
1987	263	263	0
1988	263	263	0
1989	276	275	1
1990	276	275	1
1995	302	302	0
2000	302	302	0
2005	302	302	0
2010	341	340	1
2015	367	366	1

Source: Mountain West Research-North, Inc., 1983.

TABLE 10.4.3.2-1

Cumulative Scenario Impact  
Population  
Big Horn County Allocation Areas

Year	City of Hardin (non-Indian)	Hardin Area	Decker/ Spring Creek Area
1980	0	0	0
1981	0	0	0
1982	0	0	0
1983	0	0	0
1984	0	0	0
1985	0	0	4
1986	7	0	37
1987	29	8	125
1988	63	19	130
1989	64	19	124
1990	50	14	128
1991	50	15	129
1992	51	15	134
1993	50	15	135
1994	50	14	137
1995	50	14	139
1996	66	18	146
1997	114	32	171
1998	122	35	179
1999	107	28	169
2000	99	25	170
2005	98	25	169
2010	86	22	148
2015	47	12	80

Source: Mountain West Research-North, Inc., 1983.

are expected to heighten the social and political issues already existing in the community, presenting the potential for making their resolution more imperative than under baseline conditions. It is mainly in Hardin that the issues discussed in Section 10.4.2.2 will be worked out, given its position as county seat and major commercial center of the county. See Section 10.4.2.2 for further discussion of anticipated effects on the social organization of this area.

#### 10.4.3.4 Housing

As shown in Table 10.4.3.4-1, the housing demand impacts of the cumulative scenario in Hardin would begin in 1986 at four additional units and increase to fifty-six additional units in 1999, before dropping to twenty-six additional units in 2005. The housing demand impacts in the Hardin area would be present the same years, but limited to a peak of thirteen additional units. As noted in Section 10.3.4, local builders probably would not be able to meet this additional housing demand at their current capacities due to baseline and project demand throughout the county. It should be noted that forecasts of housing demand do not take into account the effects of increased income, which is discussed more fully in Chapter 2.

#### 10.4.3.5 Facilities and Services

The projected population increment associated with the cumulative scenario would exceed the baseline case by only 2.6 percent. The rate and amount of growth projected for the cumulative scenario is not expected to create effects on Hardin's public facilities and services that differ significantly from the baseline case. (See Appendix C for details.)

#### 10.4.3.6 Fiscal

The cumulative scenario is expected to show no significant difference from the baseline case in terms of the fiscal balance of Hardin (see Table 10.4.3.6-1).

### 10.4.4 Decker Area

#### 10.4.4.1 Introduction

This section presents the Youngs Creek Mine impact forecasts for the Decker area. Section 10.4.4.2 presents the population and economic impact forecasts for the area. Section 10.4.4.3 discusses social life under the Youngs Creek Mine scenario in the Decker area. The housing impact forecasts are presented in Section 10.4.4.4. Facilities/services impact forecasts are presented in sections 10.4.4.5 and 10.4.4.6, respectively.

#### 10.4.4.2 Population and Economy

As shown in Table 10.4.3.2-1, cumulative scenario population effects in the Decker/Spring Creek area would increase from 4 people in 1985 to a peak of 179 people in 1998 and then decrease to 80 people by 2015. In 2000, when operations employment at the cumulative scenario mines would have reached its peak, Decker area employment would be 381 workers, 181 workers above the baseline level of 200 workers. In this case, it is important to note that employment impacts would exceed population impacts because most of the workers would be local. The Decker area's total labor income in the year 2000 would be \$6.65 million, about \$3.73 million above the baseline labor income of \$2.92 million. (Mountain West Research-North, Inc., 1982.)



TABLE 10.4.3.4-1

Cumulative Scenario  
Housing Demand Impacts  
Big Horn County Allocates Areas  
(Housing Units)

Year	City of Hardin (non-Indian)	Hardin Area	Decker/Spring Creek Area
1980	0	0	0
1981	0	0	0
1982	0	0	0
1983	0	0	0
1984	0	0	0
1985	0	0	2
1986	4	0	16
1987	14	3	55
1988	29	7	58
1989	30	8	57
1990	24	5	59
1991	25	6	60
1992	26	6	63
1993	25	7	65
1994	26	6	65
1995	26	6	67
1996	34	7	70
1997	56	13	82
1998	51	13	87
1999	56	12	83
2000	52	10	84
2005	52	10	84
2010	48	10	74
2015	26	5	40

Source: Mountain West Research-North, Inc. 1982.

TABLE 10.4.3.6-1

Fiscal Summary: Cumulative Scenario  
City of Hardin  
(1982 \$000)

Fiscal Summary	1982	1983	1984	1985	1986	1987	1988	1989	1990	1995	2000	2005	2010	2015
Revenues Total	878	920	924	932	941	952	965	970	993	1,042	1,090	1,143	1,186	1,218
Expenditures														
O&M	1,279	1,311	1,318	1,329	1,343	1,359	1,380	1,387	1,422	1,496	1,569	1,648	1,705	1,721
Capital	10	41	31	10	10	10	10	47	10	10	29	19	10	10
Debt Payment	49	49	49	49	49	49	49	40	40					
TOTAL	1,338	1,402	1,397	1,388	1,401	1,418	1,439	1,475	1,472	1,506	1,598	1,667	1,715	1,731
Fiscal Balance -- Alternative														
Annual	-482	-482	-473	-456	-461	-467	-473	-505	-479	-464	-507	-525	-529	-513
Cumulative			-955	-1,411	-1,872	-2,339	-2,812	-3,317	-3,796	-6,206	-8,658	-11,191	NF	NF
Fiscal Balance -- Baseline														
Annual	-475	-475	-470	-456	-460	-463	-465	-491	-472	-457	-496	-515	-523	-512
Cumulative			-945	-1,402	-1,862	-2,324	-2,789	-3,280	-3,752	-6,125	-8,512	-10,980	NF	NF

Sources: Briscoe, Maphis, Murray and Lamont, Inc.; B.Y. Analytics, 1983.

Notes: Details may not sum due to rounding. NF = not forecast. Because of limitations in the size of the computer model used to project population, it was possible to make annual projections through 2005. Thereafter only the single years 2010 and 2015 were projected. Therefore, it was not possible to compute cumulative fiscal results for years following 2005. The large net deficits shown in this table result from the methodology used (see Section 2.3.4). In actuality, such deficits would not be allowed to occur -- government officials would either find additional sources of revenues and/or reduce expenditures.

#### 10.4.4.3 Social Life and Cultural Diversity

##### Background

As indicated in the baseline discussion, the population forecasts made for the rural areas of southern Big Horn County are tenuous, given their vulnerability to the decisions of individual developers or entrepreneurs. The very small population base of the Decker area makes minor changes in absolute population size of major importance to the impact discussion. The population projections presented in the previous section indicate that the Decker area would experience significant population effects (though absolute numbers remain small) in the cumulative scenario. The population is expected to increase above baseline levels by 1985. An increase of thirty-three persons between 1985 and 1986 is forecast. Over the entire period, the population is forecast to more than double.<sup>1</sup> As discussed in the next section, the geographic patterning of this new population is uncertain because it depends on specific decisions by developers and in-migrants. Employment characteristics -- by both place of work and place of residence -- will show substantial change over the baseline, as the number of mine workers in the Decker area will more than double. Although residents are experienced with this type of nonresident work force, this magnitude of change can hardly be unnoticed, and the forecast increase of miners will represent an important shift in occupational focus among the area residents. The presence of three large, new mines, along with their accompanying infrastructure, will have an effect on the visual appearance of the area that residents will notice and regret. It is important to note, however, that these forecasts (particularly those well into the future) are tentative and can be easily changed by any number of business and/or residential decisions.

If a major, planned, unit development (such as Spring Creek) or the substantial influx of newcomers into the rural Decker area does occur, new forms and structures will be imposed upon the existing open ranch communities of this area that will have long-term consequences for community organization. It should be noted that throughout the West, such changes have happened frequently in the past, as the economy, population, and political structures have changed (HRA 1983).

##### Social organization

The community's recent and prolonged experience with declining population is expected to be reversed after 1983 as the population increases to a forecast 331 (an increase of 61.5 percent over 1980 levels) by 1990 and to 297 (an increase of 44.9 percent over 1980 levels) by 2015. At peak levels, the project-related population of the area would total 179 people, almost 50 percent of the projected population of the area. If these changes occur, the characteristics of the community's social organization would change substantially. The particular nature of the change will depend upon a number of factors that cannot be accurately forecast: the geographic distribution of the new residents, the characteristics of the new housing, the prevailing attitude toward rural living, and so on. The magnitude of population and income increase may be sufficient to prompt a minor degree of economic diversification, with the development of additional commercial and service outlets, although the proximity of Sheridan is expected to dampen such opportunities. The increased presence and economic importance of newcomer anglos and Indians are likely to cause additional social differentiation with the possibility, mentioned in the baseline discussion, that existing status patterns may coalesce into strata. Existing resentment of those earning high mining wages and the power of mining companies may be heightened, increasing the currently latent antagonisms. Mining, miners, and Indians would constitute a more prominent and economically important position in the region than under baseline conditions. The cumulative abrasion to the sensitivities of area ranchers from the physical, economic, and social/political changes brought about by the mining activities, residential

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<sup>1</sup>It should be noted that such increases have been forecast before and have not occurred.

population growth, and pressure from the growth in Sheridan are likely to continue and extend the changes and deterioration in "community" observed during the 1975-1982 period.

Linkages between community residents and the outside are likely to continue to follow the patterns described in the baseline discussion, though the extent of activity in the area will increase the intensity and importance of these outside ties. As under the baseline scenario, these forecast characteristics are subject to modification should changes in residential patterns, regulatory procedures, county governmental leadership, or population characteristics occur.

Integration in the Decker community is currently at a low ebb, due primarily to the important and intense changes that have occurred in the recent past. It is expected that the forecast changes will result in the perpetuation of the present low levels of integration well into the future. The community that has currently been significantly affected by nonagricultural forces is Decker; if land in the other small communities is taken out of agricultural use, if transportation links to Sheridan significantly improve, or if the population influx spreads throughout this area, such effects can be expected to occur throughout the area communities. The additional mining represented by the cumulative activities is likely to reduce integration as the nuisances created by greater populations seeking access to rural areas cause further alienation among agricultural residents. Factional groups may develop, due as much to conflicts in lifestyle as to any other cause. The increased economic activity (and hence, severance and property tax receipts) and the increased population may give the area the leverage to organize for a stronger political voice in county and state decisions. This could only occur if leadership in the area emerged that was capable of coordinating this type of effort and of gaining the cooperation of the different groups that would by then probably have formed.

#### Perceptions of the community

Since, as described in the baseline discussion, residents of the Decker area generally appear to be resigned to future widespread coal development in their area, it is unlikely that their perceptions will be greatly affected by the presence of the new mines, although many may feel that their worst fears have been confirmed. Since most agriculturally based residents of the area have not liked the mining that has already occurred, it is unlikely that they will feel more positive about additional strip mining in their vicinity. However, as noted previously, most area residents have resigned themselves to the inevitability of further coal development and are therefore unlikely to be surprised if such development does occur. Residents of the area are likely to experience continuing contradictory feelings regarding the changes that are occurring in the region. Many will feel positive about the continued growth of Sheridan's commercial and service sectors, improved transportation links to the Sheridan and Billings area, and greater regional prosperity, but many will be distressed by the increased nuisance levels associated with the presence of strangers and nonresidents and by the diminution of the former strong sense of community identity and cohesion. It is not clear whether the magnitude of change will be sufficient to cause the types of changes in the more distant communities, such as Kirby and Birney, that were observed during the 1970s in Decker. Residents hope, somewhat futilely they feel, that such change can be avoided.

#### 10.4.4.4 Housing

As shown in Table 10.4.3.4-1, the housing demand impacts of the cumulative scenario in the Decker/Spring Creek area would begin in 1985 at two additional units and increase to eighty-seven additional unit in 1998, before dropping to forty additional units by 2015. As noted in Section 10.3.4, local builders probably would not be able to meet this additional housing demand at their current capacities.



Under the cumulative scenario, it appears that housing demand in the Decker area could be large enough to trigger development of Spring Creek, an approved subdivision that was described in Section 3.3.4.4. If Spring Creek were developed, it would shift some housing demand away from other areas toward Spring Creek and increase baseline demand for housing in the Decker/Spring Creek area.

#### 10.4.4.5 Facilities and Services

There are no local jurisdictional units in the Decker/Spring Creek area. Consequently, no discussion of facilities/services conditions is appropriate for this geographic area. Public elementary and secondary schools are discussed at the county level.

#### 10.4.4.6 Fiscal

There are no local jurisdictional units in the Decker/Spring Creek area. Consequently, no discussion of fiscal conditions is appropriate for this geographic area. Public elementary and secondary schools are discussed at the county level.

### 10.5 Crow Reservation and Communities

#### 10.5.1 Introduction

This section presents the cumulative scenario impact forecasts for the Crow Indian Reservation and its communities. The section is comprised of four subsections, each of which focuses on a particular geographic area of the reservation. Section 10.5.2 presents population, economy, social life and cultural diversity, housing, facilities/services, and fiscal impact forecasts for the reservation as a whole. Sections 10.5.3 and 10.5.4 present the same set of impact forecasts for Crow Agency and the northeast area and for Lodge Grass and the southeast area, respectively. Because the proposed mines are expected to have a less significant impact on the central and west areas, sections 10.5.5 and 10.5.6 focus on the population and economic impact forecasts in these areas, but do not describe the housing, facilities/services, or fiscal forecasts unless warranted by the magnitude of potential impacts.

It should be noted that the incidental presence of non-Indians on the reservation due to the increased population in the Decker-Sheridan area, the location of the mines, the new road from Lodge Grass, and mine employment on or near the reservation are likely to raise the need for tribal response in the areas of law enforcement (trespass, littering, traffic) and fish and wildlife management. These consequences are addressed in the accompanying AITS report 1983.

#### 10.5.2 Crow Reservation

##### 10.5.2.1 Population and Economy

Because the cumulative scenario would not cause Crow Indian in-migration to the reservation or Hardin, its effects on the Crow population would be limited to employment and income. (See Section 4.2.2.1.) As shown in Table 10.5.2.1-1, which presents five-year increment projections for the Crow Indians on the reservation and in Hardin, Crow employment impact under the cumulative scenario would begin in 1985 at 12 workers and then increase to 439 workers by 1990 and 789 workers by 2005, before declining to 639 workers in 2010. As shown, these employment impacts would cause large reductions in the unemployment rate during the years in which employment impacts occur. In the year 2000, when the cumulative scenario mines would be at full operations employment, the total labor income of Crow Indians in Big Horn County would be \$64.5



TABLE 10.5.2.1-1

Cumulative Scenario Forecast  
Crow Indian Population, Labor Force, and Employment  
Crow Reservation and Hardin

Year	Cumulative Scenario and Baseline Scenario			Employment		Unemployment Rate (Percent)	
	Population	Labor Force	Labor Force Participation Rate (Percent)	Cumulative Scenario	Baseline Scenario	Impact	Cumulative Scenario
1980	5,378	2,089	38.8	1,319	1,319	0	36.9
1985	5,944	2,419	40.7	1,327	1,315	12	45.1
1990	6,454	2,675	41.4	1,954	1,515	439	27.0
1995	6,912	2,993	43.3	2,152	1,713	439	26.6
2000	7,414	3,239	43.7	2,645	1,885	769	18.3
2005	7,856	3,499	44.5	2,875	2,086	789	17.8
2010	8,358	3,657	43.8	2,913	2,274	639	20.3
2015	9,119	3,847	42.1	2,713	2,517	196	29.5
							34.6

Source: Mountain West Research-North, Inc., 1982.

million, or about \$33.1 million above the forecast baseline labor income of \$31.4 million in 2000. This would raise the per capita income from labor by \$4.464 -- from \$4.235 under baseline conditions to \$8,700 under the cumulative scenario. This represents a 105.4 percent increase (and does not include the effects of royalty or severance tax dividends). (Mountain West Research-North, Inc., 1982.)

It should be noted that these employment and income figures are based on the assumptions delineated in Section 5.4.1 and do not reflect the increased employment of Crow tribal members that would result if off-reservation mines practiced significant levels of Indian preference hiring. Also not included are the potential employment benefits that would result from accelerated highway construction funded by the new federal gasoline tax. Realization of these employment opportunities could make the forecasts presented in the report conservative.

The per capita income effects of the royalty payments and potential severance tax revenues to the Crow are also not reflected in these forecasts. During the period of high production by the Youngs Creek and Tanner Creek mines, these sources of income could raise both county and Crow per capita incomes by a substantial margin.

Utilizing current allocation proportions, royalty and severance tax dividend payments under the cumulative scenario could raise Crow Indians' per capita (with-project) income in 1990 from \$8,035 to \$12,292, an additional increase of 52 percent. In 2005, per capita with-project incomes would be increased from \$10,176 to \$17,124, an additional increase of 68 percent. After 2005, as cumulative scenario mining activity decreases, so would dividend payments. By 2015, these payments would increase per capita with-project income from \$6,828 to \$10,787, an additional increase of 57 percent.

#### 10.5.2.2 Social Life and Cultural Diversity

For this discussion, please see the Socioeconomic Assessment Report prepared by the Crow Tribe (AITS 1983).

#### 10.5.2.3 Housing

Because the mines in the cumulative scenario are not forecast to result in any in-migration of Crow Indians to the Crow Reservation, they would have no housing impacts on the Crow Indian population. Although the mines would result in some in-migration of non-Indians to the Crow Reservation, their numbers would be so small as to make the cumulative scenario's housing demand almost indistinguishable from baseline housing demand. Data on the housing impacts for the Crow Reservation under the cumulative scenario are presented in Appendix B.

#### 10.5.2.4 Facilities and Services

Since cumulative scenario requirements for personnel, capital facilities, and equipment are forecast primarily from service area populations, the absence of population effects from the proposed mines means a corresponding absence of facilities/services effects. Table 4.1-1 and Appendix D illustrate the similarity of the baseline and cumulative scenario populations which determine the requirements for personnel, capital facilities, and equipment. Given this similarity, no effects from the cumulative scenario mines are anticipated; conditions under the cumulative scenario are forecast as described for the baseline (see Section 4.5.2.5).

#### 10.5.2.5 Fiscal

##### Crow Reservation

As discussed in Section 4.5.2.6, many elements of the fiscal analysis are not affected by the presence of the proposed mines: major portions of the tribal expenditures and revenues do not change between the baseline and with-project scenarios because they are either constants or are based on population. As shown in Section 10.5.2-1, the reservation would experience only major employment and income effects in the cumulative scenario. However, the revenue and expenditure categories based on coal royalties received by the tribe are affected. Under the cumulative scenario, royalty receipts accrue not only from production at the Absaloka mine (included in the baseline) but also from the Youngs Creek/Tanner Creek mines.<sup>1</sup>

The remainder of this section will present the revenue and expenditure forecasts as well as the forecast net fiscal balance for the tribe. The expenditures will be presented in two forms: (1) expenditures that remain constant across scenarios, and (2) expenditures specifically related to coal royalties.

##### Revenue forecast

Table 10.5.2.5-1 presents the forecast tribal revenues, by source, for the cumulative scenario. Total tribal revenues are expected to increase from \$6.96 million in 1982 to \$31.69 million by 2015, an increase of 355 percent. The revenues are highly dependent on the coal royalty receipts. Almost all of the increases in tribal revenues over the forecast period are expected to be caused by increases in the coal royalties (from \$2.35 million in 1982 to \$27.08 million by 1995 and through 2015, an increase of 1,052 percent). The royalties and the federal contracts and grants are expected to be the major revenue sources for the tribe, accounting for 33.7 and 33.8 percent of the revenues, respectively, in 1982 and 85.4 and 7.4 percent of the revenues, respectively, in 2015. This is an indication of the increased importance of the royalties over the forecast period.

Expenditure forecast. The expenditures that are assumed to remain constant or vary with population across the scenarios are presented in Table 10.5.2.5-2. The total nonroyalty expenditures are forecast to increase from \$4.24 million in 1982 to \$4.84 million in 2015, an increase of 14.0 percent. The tribal staff spending is expected to increase from \$464,000 in the 1982 budget to \$740,000 in 2015, an increase of 59 percent. Tribal projects are forecast to increase 59 percent to \$682,000 in 2015. The attorneys/litigation line item is assumed to remain constant over the forecast period. There is a high likelihood that this item will increase, at least over the short-run, due to increased tribal litigation concerning the coal severance tax. Because the exact amount of the increase is not known, the litigation spending was assumed to remain constant.

Table 10.5.2.5-3 presents the expenditures that are directly related to coal royalty payments. Sixty percent of the royalties are mandated to be spent on dividend payments and 30 percent on land purchases. The remaining 10 percent of the royalty money goes into the tribal treasury to be spent on administrative functions of the tribe. This 10 percent is not included in the table because there are no identifiable expenditures that are made with those moneys. Total identifiable spending based on coal royalties is expected to increase from \$2.34 million in the 1982 budget to \$38.32 million by 2005. This represents an increase of 1,615 percent. Dividend payments are expected to increase from the \$1.65 million budgeted in

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<sup>1</sup>Tribal resolution (80-21) states that 60 percent of the royalties must be allocated to dividend payments to the tribal members, 30 percent must go for land purchases, and 10 percent to tribal administration. Current royalty agreements and distribution policies are assumed constant over the entire forecast period due to the absence of clear plans for change. These assumptions are for analytic purposes only and in no way affect the tribe's latitude in future negotiations.

TABLE 10.5.2.5-1

Crow Reservation Tribal Revenues  
Cumulative Scenario  
1982-2015  
(1982 \$000)

Year	Interest	Land Taxes	Fines	Damage Payments	Coal Royalties <sup>a</sup>	Oil & Gas Leases	Oil & Gas Royalties	Federal Contracts	Revolving Credit	FHA Reserve	Carry over Beginning Balance	Total
1982	\$119.6	\$130	\$.3	\$.5	\$2,350	\$400	\$150	\$2,355.7	\$113.8	\$231.8	\$1,112.2	\$6,964
1983	119.6	130	.3	.5	1,926	400	150	2,355.7	113.8	231.8	1,112.2	6,540
1984	119.6	130	.3	.5	1,926	400	150	2,355.7	113.8	231.8	1,112.2	6,540
1985	119.6	130	.3	.5	1,926	400	150	2,355.7	113.8	231.8	1,112.2	6,540
1986	119.6	130	.3	.5	1,926	400	150	2,355.7	113.8	231.8	1,112.2	6,540
1987	119.6	130	.3	.5	1,926	400	150	2,355.7	113.8	231.8	1,112.2	6,540
1988	119.6	130	.3	.5	6,443	460	150	2,355.7	113.8	231.8	1,112.2	11,057
1989	119.6	130	.3	.5	12,256	400	150	2,355.7	113.8	231.8	1,112.2	16,870
1990	119.6	130	.3	.5	18,924	400	150	2,355.7	113.8	231.8	1,112.2	23,538
1995	119.6	130	.4	.5	23,204	400	150	2,355.7	113.8	231.8	1,112.2	27,818
2000	119.6	130	.4	.5	38,704	400	150	2,355.7	113.8	231.8	1,112.2	43,318
2005	119.6	130	.4	.5	42,579	400	150	2,355.7	113.8	231.8	1,112.2	47,193
2010	119.6	130	.4	.5	42,579	400	150	2,355.7	113.8	231.8	1,112.2	47,193
2015	119.6	130	.5	.5	27,079	400	150	2,355.7	113.8	231.8	1,112.2	31,693

Source: Mountain West Research-North, Inc., 1983.

<sup>a</sup>Tribal resolution (80-21) states that 60 percent of the royalties must be allocated to dividend payments to the tribal members, 30 percent must go for land purchases, and 10 percent to tribal administration. Current royalty agreements and distribution policies are assumed constant over the entire forecast period due to the absence of clear plans for change. These assumptions are for analytic purposes only and in no way affect the tribe's latitude in future negotiations.

TABLE 10.5.2.5-2

Crow Reservation Tribal Expenditures  
All Scenarios  
1982-2015  
(1982 \$000)

Year	Tribal Staff	Attorney Litigation	Tribal Projects	Operating Expenses	Repairs and Utilities	Capital	Welfare and Burials	Education	Crow Land Enterprises	Crow Central Education	Federal Grants	FHA and Credit	Total
1982	\$464	\$175	\$428	\$85	\$125	\$20	\$108	\$50	\$60	\$24	\$2,356	\$346	\$4,241
1983	474	175	437	85	125	20	110	50	60	24	2,356	346	4,262
1984	483	175	445	85	125	20	112	50	60	24	2,356	346	4,281
1985	492	175	454	85	125	20	115	50	60	24	2,356	346	4,302
1986	501	175	462	85	125	20	117	50	60	24	2,356	346	4,321
1987	510	175	470	85	125	20	119	50	60	24	2,356	346	4,340
1988	518	175	478	85	125	20	121	50	60	24	2,356	346	4,358
1989	527	175	486	85	125	20	123	50	60	24	2,356	346	4,377
1990	534	175	493	85	125	20	124	50	60	24	2,356	346	4,392
1995	572	175	528	85	125	20	133	50	60	24	2,356	346	4,474
2000	614	175	566	85	125	20	143	50	60	24	2,356	346	4,564
2005	654	175	604	85	125	20	152	50	60	24	2,356	346	4,651
2010	690	175	636	85	125	20	160	50	60	24	2,356	346	4,727
2015	740	175	682	85	125	20	172	50	60	24	2,356	346	4,835

Source: Mountain West Research-North, Inc., 1983.



TABLE 10.5.2.5-3

Expenditures Based on Crow Reservation Tribal Royalty Payments  
 Cumulative Scenario  
 1982-2015  
 (1982 \$000)

Year	Dividends	Land Purchase	Total
1982	\$1,649	\$586	\$2,235
1983	1,156	578	1,734
1984	1,156	578	1,734
1985	1,156	578	1,734
1986	1,156	578	1,734
1987	1,156	578	1,734
1988	3,866	1,933	5,799
1989	7,354	3,677	11,031
1990	11,354	5,677	17,031
1995	13,922	6,961	20,883
2000	23,222	11,611	34,833
2005	25,547	12,774	38,321
2010	25,547	12,774	38,321
2015	16,247	8,109	24,356

Source: Mountain West Research-North, Inc., 1983.

Note: Tribal resolution (80-21) states that 60 percent of the royalties must be allocated to dividend payments to the tribal members, 30 percent must go for land purchases, and 10 percent to tribal administration. Current royalty agreements and distribution policies are assumed constant over the entire forecast period due to the absence of clear plans for change. These assumptions are for analytic purposes only and in no way affect the tribe's latitude in future negotiations.

the 1983 budget to \$25.55 million by 2005. The land purchase expenditures are forecast to increase from \$586,000 to \$12.77 million.

Net fiscal balance. Table 10.5.2.5-4 presents the net fiscal balance for the tribe for the cumulative scenario. The tribe is forecast to have a positive fiscal balance over the entire forecast period, ranging from a low of \$466,000 in 1987 to a high of \$4.22 million in 2005. A significant portion of the excess money can be attributed to the 10 percent of the coal royalties that are allocated for tribal administration but are not shown as an administration expense.

Capital. No additional capital facilities are forecast to be required of the Crow Tribe over the forecast period for the reservation.

### Indian Health Service

The Indian Health Service provides services to all Indians in Big Horn County. The demand for these services is assumed to be a function of the total number of Indians living in the county, not just those on the Crow Reservation. Since the revenues for the service are assumed to be the responsibility of the federal government they were therefore not forecast for this study. The expenditures for these services were projected but because the total number of Indians in the county is not affected by the proposed mines, the expenditures were identical to the baseline fiscal conditions described in Section 4.5.2.6 and are therefore not reiterated here.

## 10.5.3 Crow Agency and Northeast Area

### 10.5.3.1 Introduction

This section presents the cumulative scenario impact forecasts for Crow Agency and the northeast area of the Crow Indian Reservation. The section is divided into five subsections. Section 10.5.3.2 presents the cumulative scenario population and economic impact forecasts. Section 10.5.3.3 discusses social life and cultural diversity under the cumulative scenario. Section 10.5.3.4 discusses housing impact forecasts. Finally, sections 10.5.3.5 and 10.5.3.6 present facilities/services and fiscal impact forecasts, respectively.

### 10.5.3.2 Population and Economy

Because the cumulative scenario would not cause Crow Indian in-migration to the reservation or Hardin, its impacts on the Crow population would be limited to employment and income. In 2000, when operations employment under the cumulative scenario would have reached its peak, Crow Indian employment in Crow Agency and the northeast reservation would be 1,023 workers, or 271 workers above forecast baseline employment of 752 workers, an increase of 36.0 percent. Labor income under the cumulative scenario in 1990 would be \$25 million, or about \$12.26 million above forecast baseline labor income of \$12.74 million, thus increasing total labor income by 96.2 percent. Total per capita income effects are discussed in Section 10.5.2.1. (Mountain West Research-North, Inc., 1982.)

### 10.5.3.3 Social Life and Cultural Diversity

For this discussion, please see the Socioeconomic Assessment Report prepared by the Crow Tribe (AITS 1983).

TABLE 10.5.2.5-4  
Crow Reservation Tribal Net Fiscal Balance  
Cumulative Scenario  
1982-2015  
(1982 \$000)

Year	Revenues <sup>a</sup>	Expenditures	Balance
1982	6,964	6,476	488
1983	6,540	5,996	544
1984	6,540	6,015	525
1985	6,540	6,036	504
1986	6,540	6,055	485
1987	6,540	6,074	466
1988	11,057	10,157	900
1989	16,870	15,408	1,462
1990	23,538	21,423	2,115
1995	27,818	25,357	2,461
2000	43,318	39,397	3,921
2005	47,193	42,972	4,221
2010	47,193	43,048	4,145
2015	31,693	29,191	2,502

Source: Mountain West Research-North, Inc., 1983.

<sup>a</sup>Tribal resolution (80-21) states that 60 percent of the royalties must be allocated to dividend payments to the tribal members, 30 percent must go for land purchases, and 10 percent to tribal administration. Current royalty agreements and distribution policies are assumed constant over the entire forecast period due to the absence of clear plans for change. These assumptions are for analytic purposes only and in no way affect the tribe's latitude in future negotiations.

#### 10.5.3.4 Housing

Because the mines in the cumulative scenario are not forecast to result in in-migration of Crow Indians to Crow Agency or the northeast, they would not have any housing impacts on the Crow Indian population. Although the mines would result in some in-migration of non-Indians to the area, their numbers would be few and would not cause significant change in the baseline housing demand. The data showing the small incremental housing demand for Crow Agency and the northeast area are presented in Appendix B.

#### 10.5.3.5 Facilities and Services

Since cumulative scenario requirements for personnel, capital facilities, and equipment are forecast primarily from service area populations, the absence of population effects from the cumulative scenario mines means a corresponding absence of facilities/services effects. Table 4.1-4 and Appendix D illustrate the similarity of the baseline and cumulative scenario populations which determine the requirements for personnel, capital facilities, and equipment. Given this similarity, no effects from the cumulative scenario are anticipated; conditions under the cumulative scenario are forecast as described for the baseline (see Section 4.5.3.5).

#### 10.5.3.6 Fiscal

The cumulative scenario is forecast to have no effect on the fiscal condition of the Crow Reservation, lacking as it does any notable population, housing, or revenue effects for this area. Baseline fiscal conditions, described in Section 4.5.3.6, would remain unchanged under the cumulative scenario.

### 10.5.4 Lodge Grass and Southeast Area

#### 10.5.4.1 Introduction

This section presents the cumulative scenario impact forecasts for Lodge Grass and the southeast area of the Crow Indian Reservation. The section is divided into five subsections. Section 10.5.4.2 presents population and economic impact forecasts. Section 10.5.4.3 discusses social life and cultural diversity under the cumulative scenario. Section 10.5.4.4 discusses housing impact forecasts. Finally, sections 10.5.4.5 and 10.5.4.6 present facilities/services and fiscal impact forecasts, respectively.

#### 10.5.4.2 Population and Economy

Because the cumulative scenario would not cause Crow Indian in-migration to the reservation or Hardin, its impact on the Crow population in Lodge Grass and the southeast area would be limited to employment and income. In 2000, when operations employment under the cumulative scenario would have reached its peak, Crow Indian employment in Lodge Grass and the southwest reservation would be 799 workers, or 393 workers above forecast baseline employment of 406 workers, an increase of 96.8 percent. Labor income under the cumulative scenario in 1990 would be \$21.5 million, or about \$14.87 million above forecast baseline labor income of \$6.63 million. The cumulative projects are thus forecast to increase total labor income for Crow Indian residents by 224.3 percent. Per capita income effects are discussed in Section 10.5.2.1. (Mountain West Research-North, Inc., 1982.)

#### 10.5.4.3 Social Life and Cultural Diversity

For this discussion, please see the Socioeconomic Assessment Report prepared by the Crow Tribe (AITS 1983).

#### 10.5.4.4 Housing

Because the mines in the cumulative scenario are not forecast to result in any in-migration of Crow Indians to Lodge Grass or the southeast area, there would be no housing impacts on the Crow Indian population. As discussed in Chapter 2, the mines would result in some in-migration of non-Indians to the area, but their numbers would not significantly alter the baseline housing demand. The data on housing impacts for the Lodge Grass area are presented in Appendix B.

#### 10.5.4.5 Facilities and Services

Since requirements for personnel, capital facilities, and equipment are forecast primarily from service area populations, the absence of population effects from the cumulative scenario means a corresponding absence of facilities/services effects. Table 4.1-4 and Appendix D illustrate the similarity of the baseline and cumulative scenario populations which determine the requirements for personnel, capital facilities, and equipment. Given this similarity, no effects from the cumulative scenario are anticipated; conditions under the cumulative scenario are forecast as described for the baseline (see Section 4.5.4.5).

#### 10.5.4.6 Fiscal

The cumulative scenario is forecast to have no effect on the fiscal condition of the Crow Reservation, lacking as it does any notable population, housing, or revenue effects for this area. Baseline fiscal conditions, described in section 4.5.4.6, would remain unchanged under the cumulative scenario.

### 10.5.5 Central Area

#### 10.5.5.1 Introduction

This section presents the cumulative scenario impact forecasts for the central area of the Crow Indian Reservation. Section 10.5.5.2 presents population and economic impact forecasts. Section 10.5.5.3 discusses facilities/services conditions in Ft. Smith and St. Xavier under the cumulative scenario.

#### 10.5.5.2 Population and Economy

Because the cumulative scenario would not cause Crow Indian in-migration to the reservation or Hardin, its impact on the Crow population in the central area would be limited to employment and income. In 2000, when operations employment under the cumulative scenario would have reached its peak, Crow Indian employment in the central part of the reservation would be 151 workers, or 63 workers above forecast baseline employment of 88 workers, an increase of 71.6 percent. Labor income under the cumulative scenario in 1990 would be \$4.13 million, or about \$2.69 million above forecast baseline labor income of \$1.44 million. The projects are thus forecast to increase the labor income of Crow residents of the central area by 186.8 percent. Per capita income effects are discussed in Section 10.5.2.1. (Mountain West Research-North, Inc., 1982.)



#### 10.5.5.3 Other Topical Areas of Importance

For discussion of other topics of interest in the central area of the Crow Reservation, please see the Socioeconomic Assessment Report prepared by the Crow Tribe (AITS 1983).

#### 10.5.6 West Area

##### 10.5.6.1 Introduction

This section presents the cumulative scenario impact forecasts for the central area of the Crow Indian Reservation. Section 10.5.6.2 presents population and economic impact forecasts. Section 10.5.6.3 discusses facilities/services conditions in Pryor and St. Xavier under the cumulative scenario.

##### 10.5.6.2 Population and Economy

Because the cumulative scenario would not cause Crow Indian in-migration to the reservation or Hardin, its impacts on the Crow population would be limited to employment income. In 2000, when operations employment under the cumulative scenario would have reached its peak, Crow Indian employment in the western part of the reservation would be 102 workers, or 15 workers above forecast baseline employment of 87 workers. Labor income under the cumulative scenario in 1990 would be \$2.9 million, or about \$1.44 million above forecast baseline labor income of \$1.46 million, an increase of 98.6 percent. Per capita income effects are discussed in Section 10.5.2.1. (Mountain West Research-North, Inc., 1982.)

##### 10.5.6.3 Other Topical Areas of Importance

For discussion of other topical areas of importance in the western area of the Crow Reservation, please see the Socioeconomic Assessment Report prepared by the Crow Tribe (AITS 1983).

#### 10.5.7 Off-Reservation Crow

For this discussion, please see the Socioeconomic Assessment Report prepared by the Crow Tribe (AITS 1983).

### 10.6 Northern Cheyenne Reservation

#### 10.6.1 Introduction

This section presents the forecasts for the cumulative scenario for the Northern Cheyenne Indian Reservation. Section 10.6.2 describes the population and economic impact forecasts for the reservation as a whole, including both Big Horn and Rosebud counties. More detailed population and economic impact forecasts for the Big Horn County portion of the reservation are presented in Appendix B. Because the proposed mines are not forecast to cause any in-migration to the reservation, detailed housing, facilities/services, and fiscal forecasts are not presented here.

### 10.6.2 Employment and Income

Because the cumulative scenario would not cause in-migration to the Northern Cheyenne Reservation, its impact on the Northern Cheyenne Indians would be limited to employment and income. As shown in Table 10.6.2-1, employment among Northern Cheyenne Indians would increase by 6 workers in 1985, about 40 workers in 1990 and 1995, and then by about 50 workers through 2010. As shown, this employment would cause a slight reduction in the unemployment rate in each year during which there is an employment impact. In 2000, when the cumulative scenario mines would be at full operations employment, the total labor income of Northern Cheyenne Indians who live only in the Big Horn County portion of the Northern Cheyenne Indian Reservation would be \$5.5 million, about \$1.3 million above the forecast baseline labor income of \$4.2 million in 2000. (Mountain West Research-North, Inc., 1982.)

### 10.6.3 Other Topical Areas of Interest

As noted above, the cumulative scenario would increase Northern Cheyenne employment by up to 40 people during the height of the proposed mines' operations periods in the 1990s. Because employment opportunities are a major priority of the Northern Cheyenne, any actions which increase these opportunities such as training programs or preferential hiring schedules could increase the benefits accruing to the Northern Cheyenne.

As described in Section 10.3.7, the cumulative scenario's effects on Northern Cheyenne Reservation roads, particularly FAS 314 between Busby and Decker, would not be much greater than the singular effect of any one of the proposed mines. No data are available to quantify these effects. It should be noted again that improved road connections between the reservation and the mine area would benefit the tribe by increasing their opportunities for employment.

Because the proposed mines are not forecast to stimulate either Indian or non-Indian population growth on the Northern Cheyenne Reservation, the cumulative scenario would not cause a noticeable increase in trespassing on tribal lands by local residents. However, it is possible that the growth in the Sheridan area, might increase the incidence of trespass on Northern Cheyenne tribal lands by nonlocal residents. No data are available to determine the extent to which this adverse affect is likely to occur.

## 10.7 Sheridan County and Communities

### 10.7.1 Introduction

This section presents the cumulative scenario impact forecasts for Sheridan County and its communities. Section 10.7.2 presents the impact forecasts for Sheridan County as a whole. Section 10.7.3 discusses the impact forecasts for the city of Sheridan and the greater Sheridan area. Section 10.7.4 focuses on the impact forecasts for Ranchester, Dayton, and the surrounding area. Finally, Section 10.7.5 presents the impact forecasts for the rest of Sheridan County.

Throughout this section, the level of detail presented is appropriate to the magnitude of potential impacts. The sections that focus on Sheridan, Ranchester, Dayton, and the surrounding areas present a full set of population, economic, social life, housing, facilities/service, and fiscal impact forecasts. However, because the level of impact in the rest of Sheridan County (which includes the southern portion of the county) is expected to be less significant, Section 10.7.5 focuses on the population and economic impact forecasts and covers other topical areas of interest only when warranted by the potential level of impact.

TABLE 10.6.2-1

Cumulative Scenario Forecast  
Northern Cheyenne Population, Labor Force, and Employment  
Northern Cheyenne Reservation  
(Big Horn and Rosebud County)

Year	Cumulative Scenario and Baseline Scenario				Employment		Unemployment Rate (Percent)	
	Population	Labor Force	Labor Force Participation Rate (Percent)	Cumulative Scenario	Baseline Scenario	Impact	Cumulative Scenario	Baseline Scenario
1980	3,255	1,007	30.9	749	749	0	25.6	25.6
1985	3,583	1,156	32.3	903	897	6	21.9	22.4
1990	3,960	1,318	33.3	897	858	39	31.9	34.9
1995	4,324	1,514	35.0	921	881	40	39.2	41.8
2000	4,670	1,662	35.6	965	911	54	41.9	45.2
2005	4,965	1,795	36.0	996	948	48	44.5	47.2
2010	5,265	1,917	36.4	1,034	988	46	46.1	48.5
2015	NF	NF	NF	NF	NF	NF	NF	NF

Source: Mountain West Research-North, Inc., 1982.

Note: NF = not forecast.

## 10.7.2 Sheridan County

### 10.7.2.1 Population and Economy

As shown in Table 10.7.2.1-1, the cumulative scenario's population effects in Sheridan County would begin in 1985 and last through 2015. The population in the county due to the proposed projects is forecast to increase rapidly from 456 people in 1985 to 7,851 people in 2002, before declining to 3,736 people in 2015. In 2000, the projects would increase total county populations by 25.5 percent over the baseline level of 29,704 people.

As shown in Table 10.7.2.1-2, the total incremental employment due to the proposed projects in the cumulative scenario would rise from 208 workers in 1985 to 3,925 workers in 2003. After 2003, the employment impacts would decrease to 3,522 workers in 2010 and 1,922 workers in 2015. As shown in the table, the largest employment increases are forecast to occur in the mining, construction, and TCPU (which is closely linked to coal production) sectors, which in turn stimulate employment in the other sectors. In 2000, the projects are forecast to increase the employment of the county residents by 3,750 workers or 23.9 percent of total employment.

As shown in Table 10.7.2.1-3, the employment created by the proposed projects would be about nearly 55 percent nonbasic and 45 percent basic in most of the forecast years.

Table 10.7.2.1-4 presents the income effects that are forecast to occur under the cumulative scenario. As shown, the total personal income that would accrue to Sheridan County residents as a result of the cumulative scenario projects would rise from \$4.8 million per year in 1985 to \$95.5 million in 2004 (over the baseline personal income of \$316 million) before falling to \$48.4 million per year in 2015. The project's effects on per capita personal income in 1990 would be to raise it from \$10,414 (baseline) to \$10,560, a difference of \$146, or 1.4 percent. In 2000, the difference between cumulative scenario and baseline per capita income is forecast to be \$296. In 2010, this difference is forecast to have increased to \$347.

### Commercial opportunities

As shown in Table 10.7.2.1-5, the cumulative scenario would result in about 157 additional commercial opportunities in Sheridan County in 2000 after the operations period populations from all mines and railroads had stabilized. The 2000 level of 749 commercial opportunities would be 42 percent above the current 1982 level.

### 10.7.2.2 Social Life and Cultural Diversity

The incremental population effects of the cumulative scenario on Sheridan County are substantial -- a maximum increase of approximately 7,900 persons out of a county with a baseline population of about 30,000 people. The pattern of population and employment effects is discussed in Section 10.7.2.1.

It is anticipated that the additional population and employment generated by the project will cause the trends initiated during the 1970s to continue at an accelerated pace, well above that anticipated under baseline conditions. As shown in Table 10.3.3-1, by the middle of the forecast period, a very substantial portion of the county population will be newcomers, a fact that will alter the potential for personal familiarity among residents and reduce the distinctive character of the county. With the new mines, the population will continue to be younger and better educated than it otherwise would be, and the additional employment opportunities created by the mine will attract persons of greater personal and social diversity than would exist without the project population, in part because the project activities will

TABLE 10.7.2.1-1  
Cumulative Scenario Impact  
Population  
Sheridan County

Year	Total Population	Births	Deaths	Employment- Related Migration	Non-employment Related Migration	Total Change
1980	0	0	0	0	0	0
1981	0	0	0	0	0	0
1982	0	0	0	0	0	0
1983	0	0	0	0	0	0
1984	0	0	0	0	0	0
1985	456	0	0	456	0	456
1986	2418	7	0	1956	-0	1962
1987	4377	41	4	1925	-4	1958
1988	4532	80	8	91	-9	154
1989	4613	84	9	16	-9	81
1990	4767	85	10	88	-9	153
1991	4840	84	11	10	-10	73
1992	4831	81	12	-68	-10	-9
1993	4826	76	13	-57	-10	-5
1994	4872	71	14	0	-10	46
1995	4796	68	15	-118	-11	-76
2000	7568	112	27	-51	-19	14
2005	7466	99	36	-219	-18	-174
2010	6847	71	41	32	-15	47
2015	3736	39	22	41	-8	50

Source: Mountain West Research-North, Inc., 1982.

Notes: Details may not sum due to rounding. All values except total population represent annual changes.



TABLE 10.7.2.1-2

Cumulative Scenario Impact  
Total Employment by Sector  
Sheridan County

Year	Ag Propri etors	Ag Labor	Mining	Con struc tion	Manu factu ring	TCPU	Trade	FIRE	Ser vices	Gov ern ment	Other +com.	Total
1980	0	0	0	0	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0	0	0	0	0
1984	0	0	0	0	0	0	0	0	0	0	0	0
1985	0	0	0	108	6	6	31	3	18	33	0	208
1986	0	0	170	395	33	33	157	19	96	178	0	1084
1987	0	0	588	389	63	104	288	36	181	333	0	1984
1988	0	0	766	217	74	136	327	39	205	369	0	2136
1989	0	0	852	81	79	178	342	40	210	376	0	2160
1990	0	0	861	72	85	206	364	42	220	392	0	2246
1991	0	0	861	74	86	233	370	43	224	400	0	2293
1992	0	0	861	74	86	233	371	43	225	402	0	2300
1993	0	0	861	75	87	234	374	43	227	405	0	2309
1994	0	0	861	75	87	234	376	44	229	408	0	2318
1995	0	0	861	76	88	235	378	44	230	411	0	2327
2000	0	0	1320	124	148	417	627	71	376	665	0	3749
2005	0	0	1308	127	150	413	639	73	386	684	0	3783
2010	0	0	1140	122	146	407	615	71	369	650	0	3522
2015	0	0	644	58	81	265	329	29	180	338	0	1922

Source: Mountain West Research-North, Inc., 1982.

Note: Details may not sum due to rounding.

TABLE 10.7.2.1-3

Cumulative Scenario Impact  
Employment by Type  
Sheridan County

Year	Total	Non Basic	Basic Total	Basic Non Project	Indirect Basic	Basic Project O&M	Project Construc- tion-Perm	Project Construc- tion-NLoc.
1980	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0
1984	0	0	0	0	0	0	0	0
1985	208	98	110	0	9	0	44	55
1986	1084	526	557	-0	31	170	140	214
1987	1984	986	998	42	45	588	102	220
1988	2136	1108	1028	66	49	766	42	103
1989	2160	1128	1032	107	61	852	3	8
1990	2246	1181	1065	132	71	861	0	0
1991	2293	1203	1090	157	71	861	0	0
1992	2300	1210	1090	157	71	861	0	0
1993	2309	1219	1090	157	71	861	0	0
1994	2318	1227	1090	157	71	861	0	0
1995	2327	1237	1090	157	71	861	0	0
2000	3749	2007	1742	290	132	1320	0	0
2005	3783	2065	1718	282	128	1308	0	0
2010	3522	1972	1550	282	128	1140	0	0
2015	1922	1061	861	176	41	644	0	0

Source: Mountain West Research-North, Inc., 1982.

Notes: Details may not sum due to rounding. "Basic project O&M" and "Indirect Basic" represent direct and indirect basic coal mining employment, respectively. No mines are assumed to operate in 2015.

TABLE 10.7.2.1-4

Cumulative Scenario Impact  
Personal Income  
Sheridan County  
(1980 \$000)

Year	Total Labor Income	FICA Payments Payments	Non-labor Income	Residency Adjustment	Total Personal Income	Personal Income Per Capita (1980 \$)
1980	0	0	0	0	0	0
1981	0	0	0	0	0	0
1982	0	0	0	0	0	0
1983	0	0	0	0	0	0
1984	0	0	0	0	0	0
1985	4314	196	710	0	4828	NC
1986	23000	1048	3828	0	25781	NC
1987	42615	1942	7278	0	47951	NC
1988	45551	2076	8113	0	51588	NC
1989	46400	2114	8505	0	52791	NC
1990	47726	2175	8973	0	54525	147
1991	48497	2210	9353	0	55640	NC
1992	48557	2213	9629	0	55972	NC
1993	48706	2220	9943	0	56430	NC
1994	48819	2225	10282	0	56876	NC
1995	48943	2230	10635	0	57348	NC
2000	77657	3539	17511	0	91629	296
2005	77748	3543	20011	0	94215	NC
2010	70725	3223	21114	0	88617	347
2015	38596	1759	11523	0	48359	172

Source: Mountain West Research-North, Inc., 1982.

Notes: Details may not sum due to rounding. NC = not calculated.

TABLE 10.7.2.1-5  
Commercial Opportunities  
Cumulative Scenario  
Sheridan County, Wyoming  
2000

Type of Commercial Opportunity	With Project	Baseline	Impact
<u>Retail</u>			
Gasoline Service Station	61	49	12
Eating and Drinking Place	84	67	17
Grocery and Other Food Store	29	23	6
Motor Vehicle Dealers and Auto Supply Store	25	20	5
Clothing and Shoe Store	22	18	4
Lumber, Hardware, and Mobile Home Dealers	28	21	7
Furniture and Household Appliance Stores	19	15	4
Department Stores	5	4	1
Drug, Variety, General Merchandise Stores	34	27	7
Sporting Goods, Hobby, Flowers, Gift, Sewing Stores	31	25	6
Liquor Store	13	11	2
Jewelry Store	10	8	2
Book Store and Newstands	3	3	0
<u>Service</u>			
Hotels, Motels, Commercial Campgrounds	68	54	14
Beauty and Barber Shops	38	31	7
Auto Repair Shops	38	30	8
Legal, Accounting, Advertising, Data Processing	70	56	14
Engineering, Architecture, Surveying	17	13	4
Equipment and Auto Renting and Leasing	11	9	2
Laundries	13	10	3
Appliance, Furniture, and Shoe Repair	17	14	3
Movie Theatres and Bowling Alleys	10	8	2
Janitorial Services	15	12	3
Photographic Studios	8	6	2
Car Washes	5	4	1
Funeral Services	3	2	1
<u>Finance and Real Estate</u>			
Real Estate Office	33	26	7
Insurance Agencies	15	12	3
Personal Credit Institution	15	7	8
Commercial Bank	8	6	2
Savings and Loan Association	1	1	0
<b>TOTAL</b>	<b>749</b>	<b>592</b>	<b>157</b>

Source: Mountain West Research-North, Inc., 1982.

Note: Forecast population in 2000: 37,272..

create a greater flow of persons through the county. The increased income in the region will support greater economic activity and diversity, especially in the greater Sheridan area. An important determinant of the extent of economic diversification will be the perceptions that managers and entrepreneurs develop about the longevity and stability of the increased economic levels. The experience of the early 1980s may inhibit business expansion, as greater caution will be taken to avoid the risks of over-expansion. Such caution could aggravate problems of resource availability, especially housing. The same will be true of governmental decisions regarding facility and service expansion. Although forecasts for additional population will encourage expansion of facilities, the concern for unanticipated downturns is likely to cause decision-makers to delay such expansion for as long as possible. Since a wait and see attitude has been typical of the county in the past, this will not represent a radical departure from their established approach. With the magnitude of growth forecast under the cumulative scenario, once development is under way, decision-makers may be forced to take a more aggressive "planning and prevention" approach. If such a change occurs, it could be expected to elicit anxiety and tension among residents and decision-makers as it would reflect a significant change in governmental philosophy.

During the mid-1980s, the county will need to make provisions for a large and rather rapid influx of mine construction workers and supporting population. It is likely that discussions will be held between mine owners and county officials concerning the provision of company-sponsored worker housing, as the availability of housing, particularly to meet a temporary demand, is often a problem and residents of Sheridan are already concerned about the high cost of housing (see Section 10.7.2.3). The ability of county officials to negotiate such mitigation efforts would mark an important milestone in government-industrial relationships.

The increased importance of mining in the area economy will encourage local business and social service (including educational) interests to develop additional linkages to mining. Although in the short run this will provide additional opportunities and diversity in the community, the basic dependence upon mining will increase exposure to the risks of unanticipated downturns in the mining industry and to greater impacts during the phase-out period. Both residents and leaders in the county are likely to be increasingly concerned if efforts for diversification are not pursued and successful and to pay increased attention to state and national events that could affect the coal industry. The experience of the early 1980s has created an unease about large expansions that are dependent upon continued mining activities. This is especially true in the Sheridan area (and Wyoming) which does not have access to the severance tax funds from the mining activities to ease or prevent this bust cycle.

The increased population (due both to baseline and with-project growth) will have moderate, incremental effects on the changes in social organization discussed in Section 4.7.2.2. Most of these effects will be felt at the community level and are therefore discussed in subsequent sections. Some, however, will be more diffused throughout the county. The increased population will cause additional pressure on the area ranchers to open their land for hunting, fishing, and other outdoor recreation activities. Though most ranchers in the county have traditionally been willing to accommodate such requests, the magnitude of the population will raise the demand for such activities to the level that some ranchers may seek to avoid the issue or to protect themselves by simply closing and posting their land. Interviews with rural residents in Sheridan County indicate that this change in tradition will be made with regret. If widespread, it is likely that such actions would create increased pressure on public lands, decreased satisfaction by both longtime and newcomer residents of the more urbanized areas of the county, and increased incidence of trespassing and vandalism. However, unless active measures are taken to avert such consequences, it appears likely that this outcome will occur sooner or later.

It is expected that the experience gained by the county during the 1970s will enable it to deal expeditiously with the forecast population growth. It is likely that the handling of growth will prove to be easier than the handling of the decline the county has experienced during the early 1980s and will experience at the end of the forecast scenario. It is generally easier to plan for and control growth than decline. One reason for this is that economic decline and loss of population is more thoroughly beyond



the control of the local community/county than growth which can be at least somewhat controlled by local regulations. In addition, funds have historically been more readily available during the growth than during the bust cycle.

#### Perceptions of the community and indicators of social well-being

As during the 1970s, the residents of Sheridan County will place different interpretations upon the changes that take place as a result of the mining activity. Most will continue to regret the effect of mining on the local environment and will be concerned about possible longterm effects on water and agriculture. If area residents perceive that the current trends toward increased landholding by energy companies, which removes land from agricultural use, are accelerated by the projects, many will disapprove. Increased traffic congestion and pressure on housing will also be viewed with displeasure by most area residents, particularly the elderly who feel themselves especially inconvenienced and affected by such change. The transients present in the community during the construction phase of the projects will probably be considered a detriment to the community, just as they were during the 1970s. At the same time, most residents genuinely wish the community and county to prosper, and for residents to have satisfying and well-paying jobs. They do not, however, want to sacrifice the amenities, the small-town character, nor the aesthetics of their community.

Aside from the changes in material well-being that are described in the other sections, the changes in social indicators discussed in Section 10.3.3 will also apply to Sheridan County and its communities.

#### 10.7.2.3 Housing

As shown in Table 10.7.2.3-1, housing deficits under the cumulative scenario in Sheridan County are forecast to occur between 1986 and 1991 and again in 1997 and 1998. A peak deficit of 903 units is forecast to occur in 1987. Because baseline deficits are not forecast to occur in Sheridan County, all of this deficit can be attributed to the mines included in the cumulative scenario. However, as noted in Section 2.3.3, these deficits would be reduced if local builders expanded their current capacities or if they were joined by nonlocal builders. More detail on the cumulative scenario mines' impact on housing demand in Sheridan subcounty areas is provided in subsequent sections. The actual housing demand forecasts by type of unit for each area under the cumulative scenario are summarized in Appendix B. These forecasts do not account for the effect of increased income on housing demand, which is more fully discussed in Section 2.3.3.

#### 10.7.2.4 Facilities and Services

##### Sheridan County

Table 10.7.2.4-1 shows projections of facilities required under the cumulative scenario. The capital facilities requirements shown in the table, although greater, are similar to those projected for the baseline.

The data show the planned construction of a new courthouse in 1983 (at a cost of more than \$6.5 million) and additional requirements for shop space and fire station space through 2002. Shop space requirements increase from the 30,257 sq. ft. projected for the baseline to 39,852 sq. ft. under the cumulative scenario (at an incremental cost of \$385,000). Fire space needs rise from 1,799 sq. ft. in the baseline to 5,520 sq. ft. in the cumulative scenario (an incremental cost of \$211,000).

TABLE 10.7.2.3-1

Cumulative Scenario Forecast  
Housing Unit Demand/Supply  
Sheridan County

Year	Total Demand	Incremental Demand Over Previous Year	Local Supply Response (Limit = 500)	Cumulative (Deficit) Surplus due to Projects
1980	10,457			
1981	10,959	502	500	0
1982	11,041	82	84	0
1983	11,135	94	94	0
1984	11,227	92	92	0
1985	11,710	483	483	0
1986	12,708	998	500	(498)
1987	13,613	905	500	(903)
1988	13,931	318	500	(721)
1989	14,218	287	500	(508)
1990	14,550	332	500	(340)
1991	14,735	185	500	(25)
1992	14,945	210	235	0
1993	15,133	188	188	0
1994	15,311	178	178	0
1995	15,536	225	225	0
1996	15,885	349	349	0
1997	16,570	685	500	(185)
1998	16,998	428	500	(113)
1999	17,324	326	439	0
2000	17,591	267	267	0
2005	17,464	-127 for 5 years	0 for 5 years	127
2010	18,194	730 for 5 years	603 for 5 years	0
2015	16,753	-1,441 for 5 years	0 for 5 years	1,441

Source: Mountain West Research-North, Inc., 1982.

TABLE 10.7.2.4-1

Summary of Facility Requirements: Cumulative Scenario  
Sheridan County

Year	Facility	Baseline Change in Capacity (sq. ft.)	Cumulative Scenario	
			Change in Capacity (sq. ft.)	Capital Outlay (\$000)
1983	Gen. Admin. Space	53,670	53,670 <sup>a</sup>	\$5,000 <sup>a</sup>
1983	Shop Space	27,423	33,421	1,337
1985	Fire Space	1,007	3,423	195 <sup>b</sup>
1990	Shop Space	1,319	4,013	161 <sup>b</sup>
1993	Fire Space	345	1,713	98 <sup>b</sup>
1997	Shop Space	660	-	-
1998	Shop Space	-	2,040	82 <sup>b</sup>
2001	Fire Space	477	384	22 <sup>b</sup>
2002	Shop Space	855	378	15 <sup>b</sup>

Sources: Briscoe, Maphis, Murray, and Lamont, Inc.; B.Y. Analytics, 1983.

<sup>a</sup>Planned expansion.

<sup>b</sup>Capital outlay occurs in the preceding year.

#### Memorial Hospital of Sheridan County

The cumulative scenario results in capacity requirements of approximately twenty-nine beds by 2002. This additional bed capacity is planned to be phased in 1986 (15 beds), 1994 (13 beds) and 2002 (1 bed). Under the baseline scenario, only four additional beds were required.

#### Social Services

Under the cumulative scenario, the Sheridan County Division of Public Assistance and Social Services would need to increase its staff from the current level of 13 persons to 17 persons in 1995 and 17.6 persons in 2015 (based on the 1982 ratio of .0005 staff persons per capita). The 1995 requirement would be about 2.3 persons above the baseline level and the 2015 requirements would be about 1.9 persons above the baseline level. Hence, the cumulative scenario would result in the need for about two additional staff persons above baseline needs during the 1990s and throughout the remainder of the forecast period.

Based on a space standard of .1 sq. ft. per capita, space requirement would be 3,418 sq. ft. in 1995 (479 sq. ft. above baseline) and 3,524 sq. ft. in 2015 (373 sq. ft. below baseline). However, if the 1982 space ratio of .1289 sq. ft. per capita is to be maintained, then the current 3,400 sq. ft. of space would need to be expanded to 4,406 sq. ft. in 1995 (619 sq. ft. above baseline) and 4,543 sq. ft. in 2015 (482 sq. ft. above baseline). Hence, regardless of the standard used, the incremental demand generated under the cumulative scenario would be enough to trigger the addition of 500 to 600 sq. ft. of space in the 1990s and 400 to 500 sq. ft. by 2015 above that required under the baseline scenario.

#### 10.7.2.5 Fiscal

##### Sheridan County

Table 10.7.2.5-1 shows the forecast fiscal summary for the cumulative scenario. As shown in this table, the negative fiscal balance present under baseline conditions is aggravated by the proposed actions, increasing from a cumulative deficit in 2005 of \$43.2 million under baseline conditions to \$54.2 million under the cumulative scenario, an increase of \$11 million. On an annual basis, the project's effects are forecast to be negative in each of the forecast years, rising from an annual level of \$40 thousand in 1985 to \$660 thousand in 1995 before falling to \$563 thousand in 2010 and \$328 thousand in 2015.

These negative effects, which follow baseline trends, result from the larger facility requirements of the increased population and from the county's continuing dependence on inelastic sources of revenue. The conditions creating these deficits are explained more fully in Section 4.7.2.5.

#### Memorial Hospital of Sheridan County

Table 10.7.2.5-2 shows the forecast fiscal summary for the cumulative scenario. The analysis indicates that the hospital has been and can continue to be self-supporting, even under the cumulative scenario. Projected deficits are insignificant in light of the overall level of operation.

#### 10.7.2.6 Schools -- Facilities/Services and Fiscal

##### School District No. 1

The cumulative scenario would not significantly affect the capacity requirements outlined in the baseline scenario.

TABLE 10.7.2.5-1

Fiscal Summary: Cumulative Scenario  
Sheridan County  
(\$000 1982)

FISCAL SUMMARY	1982	1993	1984	1985	1986	1987	1988	1989	1990
REVENUES TOTAL	7386	4327	4335	4419	4528	4882	4764	4788	4324
EXPENDITURES									
O & M	5791	4916	4933	5107	5527	5988	5982	6232	6187
CAPITAL	1387	7867	925	730	730	730	730	891	730
DEBT PAYMENT	126	74	74	74	74	74			
TOTAL	7386	12856	5931	5918	6338	6712	6712	5923	6337
FISCAL BALANCE									
ANNUAL		-7729	-1596	-1491	-1718	-1909	-1948	-2134	-2813
CUMULATIVE		-7729	-9325	-10816	-12527	-14436	-16383	-18518	-20531
FISCAL BALANCE NO ACTION									
ANNUAL		-7489	-1458	-1451	-1498	-1525	-1549	-1621	-1594
CUMULATIVE		-7489	-8947	-10398	-11896	-13421	-14978	-16591	-18185
	1995	2000	2005	2010	2015				
REVENUES TOTAL	4875	5125	5104	5189	4552				
EXPENDITURES									
O & M	6216	6737	6692	6666	6395				
CAPITAL	730	752	730	730	730				
DEBT PAYMENT									
TOTAL	6946	7489	7422	7596	7125				
FISCAL BALANCE									
ANNUAL	-2070	-2353	-2317	-2409	-2163				
CUMULATIVE	-38897	-42325	-54211	NF	NF				
FISCAL BALANCE NO ACTION									
ANNUAL	-1648	-1783	-1668	-1846	-1835				
CUMULATIVE	-26324	-34689	-43284	NF	NF				

Note: Details may not sum due to rounding.

Because of limitations in the size of the computer model used to project population, it was possible to make annual projections through 2005. Thereafter, only the single years 2010 and 2015 were projected. Therefore, it was not possible to compute cumulative fiscal results for years following 2005.

The large net deficit shown in this table result from the methodology used (see Section 2.3.4). In actuality, such deficits would not be allowed to occur -- government officials would either find additional sources of revenues and/or reduce expenditures.

NF= not forecast.



TABLE 10.7.2.5-2

Fiscal Summary: Cumulative Scenario  
Memorial Hospital of Sheridan County  
(\$000 1982)

FISCAL SUMMARY	1982	1983	1984	1985	1986	1987	1988	1989	1990
REVENUES TOTAL	7874	7673	7701	7997	8710	9358	9483	9569	9696
EXPENDITURES									
O & M	7606	7456	7484	7775	8477	9115	9238	9322	9447
CAPITAL	268	270	270	270	1329	270	270	270	270
INDUCED O&M									
DEBT PAYMENT									
TOTAL	7874	7726	7754	8045	9806	9385	9508	9592	9717
FISCAL BALANCE									
ANNUAL		-54	-53	-48	-1096	-27	-25	-23	-21
CUMULATIVE		-54	-107	-155	-1251	-1278	-1303	-1326	-1347
FISCAL BALANCE NO ACTION									
ANNUAL		-54	-53	-50	-48	-47	-45	-44	-43
CUMULATIVE		-54	-107	-157	-205	-252	-297	-342	-385
	1995	2000	2005	2010	2015				
REVENUES TOTAL	9881	10766	10689	10985	10185				
EXPENDITURES									
O & M	9629	10500	10424	10716	9928				
CAPITAL	270	270	270	270	270				
INDUCED O&M									
DEBT PAYMENT									
TOTAL	9899	10770	10694	10986	10198				
FISCAL BALANCE									
ANNUAL	-18	-4	-5	-1	-13				
CUMULATIVE	-2044	-2084	-2162	NF	NF				
FISCAL BALANCE NO ACTION									
ANNUAL	-40	-39	-40	-30	-30				
CUMULATIVE	-592	-928	-1270	NF	NF				

Note: Details may not sum due to rounding.

Because of limitations in the size of the computer model used to project population, it was possible to make annual projections through 2005. Thereafter, only the single years 2010 and 2015 were projected. Therefore, it was not possible to compute cumulative fiscal results for years following 2005.

The large net deficits shown in this table result from the methodology used (see Section 2.3.4). In actuality, such deficits would not be allowed to occur --government officials would either find additional sources of revenues and/or reduce expenditures.

NF=not forecast.

Personnel requirements for teachers are expected to increase to 118 in 1997 before declining to 84 in 2015. The requirements for support personnel would follow a similar trend, increasing to 63 in 1997 (from 49 currently) and then decreasing to 45 in 2015. This compares to a peak baseline requirement of 100 teachers and 53 support personnel in 1988.

Table 10.7.2.6-1 shows the fiscal summary for School District No. 1 under the cumulative scenario. The increase in operation and maintenance costs associated with larger staffs accounts for the greater deficits forecast under this scenario.

### Sheridan County School District No. 2

The cumulative scenario would result in additional capacity requirements for elementary, junior high, and senior high schools. By 1987, additional elementary capacity (24,500 sq. ft.) would be required at a cost of \$1.3 million. An additional, smaller capacity requirement is projected for 1992. The additional capacity requirements are expected to be required through 2002, before declining enrollment becomes a factor in facility adjustments.

Table 10.7.2.6-2 shows the fiscal summary for the cumulative scenario. The cumulative scenario is expected to have negative fiscal impacts on both capital and operating balances. By 2005, assuming that no response is made to the deficit conditions, the cumulative fiscal deficit is forecast to reach \$67.5 million, \$32.9 million greater than forecast for the baseline scenario.

### 10.7.3 Sheridan and Area

#### 10.7.3.1 Introduction

This section presents the cumulative scenario impact forecasts for the city of Sheridan and the greater Sheridan area. Section 10.7.3.2 presents the population and economic impact forecasts for each area. Section 10.7.3.3 discusses social life in Sheridan and the Sheridan area under the cumulative scenario. The housing impact forecasts are presented in Section 10.7.3.4. Facilities/services and fiscal forecasts are discussed in sections 10.7.3.5 and 10.7.3.6, respectively.

#### 10.7.3.2 Population and Economy

As shown in Table 10.7.3.2-1, population effects in the city of Sheridan under the cumulative scenario would begin in 1985 at 297 people and then grow rapidly to 2,638 people in 1987 when the cumulative scenario projects would account for 15.4 percent of the city's total population. The population effect would then increase more slowly to 4,578 people (20.2 percent) in 2000 and then decline to 2,259 people (10.5 percent) in the year 2015. The population effects in the greater Sheridan area would follow a similar pattern, increasing from 121 people (2.1 percent) in 1985 to 1,349 people (19.2 percent) in 1987, to 2,242 people in 2000, and then to 1,106 (17.6 percent) in 2015.

In 2000, when operations employment at the mines would have reached its peak, 2,409 Sheridan residents would have project-related jobs, with area employment reaching 12,260 compared to the baseline level of 9,851 workers. In the greater Sheridan area, employment would be 3,832 workers, or 1,007 workers above the baseline employment of 2,825 workers. Labor income in the city of Sheridan in 2000 would be \$183.2 million, or \$47.5 million above baseline labor income of \$135.7 million. In the greater Sheridan area, total labor income in the year 2000 would be \$61.0 million, or \$22.9 million above baseline labor income of \$38.1 million.

TABLE 10.7.2.6-1

Fiscal Summary: Cumulative Scenario  
 Sheridan County School District No. 1  
 (\$000 1982)

FISCAL SUMMARY	1982	1983	1984	1985	1986	1987	1988	1989	1990
REVENUES TOTAL	10205	4118	4078	4188	4513	4833	4890	4935	4950
EXPENDITURES									
O & M	3980	4017	3966	4100	4506	4920	5012	5070	5090
CAPITAL	5987								
DEBT PAYMENT	253	253	253	253	253	253	253	253	253
TOTAL	10220	4271	4220	4353	4759	5173	5265	5324	5343
FISCAL BALANCE									
ANNUAL	-15	-153	-141	-165	-246	-340	-374	-389	-393
CUMULATIVE	-15	-153	-294	-459	-705	-1045	-1419	-1808	-2201
FISCAL BALANCE NO ACTION									
ANNUAL		-153	-141	-154	-182	-207	-217	-224	-223
CUMULATIVE		-153	-294	-448	-630	-837	-1054	-1278	-1501
	1995	2000	2005	2010	2015				
REVENUES TOTAL	4895	4803	3888	3868	3556	Note: Details may not sum due to rounding. Because of limitations in the size of the computer model used to project population, it was possible to make annual projections through 2005. Thereafter, only the single years 2010 and 2015 were projected. Therefore, it was not possible to compute cumulative fiscal results for years following 2005. The large net deficit shown in this table result from the methodology used (see Section 2.3.4). In actuality, such deficits would not be allowed to occur -- government officials would either find additional sources of revenues and/or reduce expenditures. NF= not forecast.			
EXPENDITURES									
O & M	5022	4902	4047	4016	3649				
CAPITAL									
DEBT PAYMENT	253	253							
TOTAL	5275	5155	4047	4016	3649				
FISCAL BALANCE									
ANNUAL	-379	-352	-159	-148	-93				
CUMULATIVE	-4155	-6022	-7325	NF	NF				
FISCAL BALANCE NO ACTION									
ANNUAL	-199	-110	59	49	45				
CUMULATIVE	-2566	-3316	-3456	NF	NF				

TABLE 10.7.2.6-2

Fiscal Summary: Cumulative Scenario  
 Sheridan County School District No. 2  
 (\$000 1982)

FISCAL SUMMARY	1982	1983	1984	1985	1986	1987	1988	1989	1990
REVENUES TOTAL	15537	14838	14184	14679	15875	16858	17133	17314	17540
EXPENDITURES									
O & M	14420	14388	14581	15575	17464	18990	19458	19743	20185
CAPITAL	484		3513	1589	1324				
DEBT PAYMENT	689	689	568	526	526	526	526	526	526
TOTAL	15513	14997	18662	17610	19314	19516	19976	20259	20631
FISCAL BALANCE									
ANNUAL		-967	-4558	-2931	-3439	-2666	-2810	-2955	-3089
CUMULATIVE		-967	-5525	-8456	-11895	-14561	-17371	-20326	-23430
FISCAL BALANCE NO ACTION									
ANNUAL		-967	-2209	-1672	-1557	-1628	-1734	-1795	-1871
CUMULATIVE		-967	-3176	-4848	-6405	-8033	-9767	-11562	-13433
	1995	2000	2005	2010	2015				
REVENUES TOTAL	17255	16966	15656	15738	14715	<p>Note: Details may not sum due to rounding.</p> <p>Because of limitations in the size of the computer model used to project population, it was possible to make annual projections through 2005. Thereafter, only the single years 2010 and 2015 were projected. Therefore, it was not possible to compute cumulative fiscal results for years following 2005.</p> <p>The large net deficit shown in this table result from the methodology used (see Section 2.3.4). In actuality, such deficits would not be allowed to occur -- government officials would either find additional sources of revenues and/or reduce expenditures.</p> <p>NP= not forecast.</p>			
EXPENDITURES									
O & M	20018	19732	17499	17529	15992				
CAPITAL									
DEBT PAYMENT	256								
TOTAL	20276	19732	17499	17529	15992				
FISCAL BALANCE									
ANNUAL	-3021	-2766	-1843	-1799	-1277				
CUMULATIVE	-39991	-55408	-67487	NP	NP				
FISCAL BALANCE NO ACTION									
ANNUAL	-1778	-1043	-365	-592	-593				
CUMULATIVE	-23494	-30729	-34619	NP	NP				



TABLE 10.7.3.2-1

Cumulative Scenario Impact  
Population  
Sheridan County Allocation Areas

Year	Sheridan County	Sheridan City	Greater Sheridan Area	Ranchester Dayton Area	Rest of County
1980	0	0	0	0	0
1981	0	0	0	0	0
1982	0	0	0	0	0
1983	0	0	0	0	0
1984	0	0	0	0	0
1985	456	297	121	34	2
1986	2,418	1,508	709	195	4
1987	4,377	2,638	1,349	357	31
1988	4,532	2,692	1,410	386	42
1989	4,613	2,735	1,423	396	59
1990	4,767	2,837	1,454	403	72
1991	4,840	2,882	1,474	408	75
1992	4,831	2,867	1,479	411	72
1993	4,826	2,856	1,484	414	71
1994	4,872	2,883	1,498	417	72
1995	4,796	2,826	1,485	415	68
1996	5,193	3,091	1,587	438	76
1997	6,675	4,060	1,986	529	98
1998	7,306	4,437	2,181	581	105
1999	7,554	4,580	2,230	601	141
2000	7,568	4,578	2,242	605	141
2005	7,486	4,528	2,217	598	143
2010	6,847	4,141	2,028	547	131
2015	3,736	2,259	1,106	298	73

Source: Mountain West Research-North, Inc.,

Note: Details may not sum due to rounding.



### 10.7.3.3 Social Life and Cultural Diversity

As discussed in Section 10.7.2.2, the additional population due to the proposed projects in the cumulative scenario will build upon and exaggerate the trends established during the 1970s and which are forecast to continue due to baseline population and employment growth. During the forecast period, the community of Sheridan will have the benefit of its experience with growth during the 1970s. Community leaders and residents alike can therefore be expected to be better prepared for, less surprised by, and therefore less anxious about the changes occurring during the forecast period. Although the incremental population growth due to the project is relatively large (6,800), it occurs over a relatively extended period, is limited, and so should not pose a major problem for decision-makers, especially if adequate communication between the companies and the community takes place and federal and Wyoming state funds continue to be available to assist the community with facility and service provision.

It is anticipated that the downturn in employment and population during the phase-out period of the projects will cause the community more problems than will the growth period. The loss of a major component of the local economy -- particularly one which is a basic industry and which therefore has created many additional jobs which will also be lost -- is a shock to any community. Ramifications of the closure will be felt throughout the economy, and, because of the extent to which local residents will have participated in these jobs, throughout the population as well. The extent of area dependence upon mining forecast in the cumulative scenario will make it difficult to diminish the dislocations of the phase out period, even if it is anticipated and scheduled. Other changes in economic structure and governmental activities and services due to the proposed mines are addressed elsewhere in the chapter and are not repeated here.

The changes that are expected to occur in social organization as a consequence of the project will generally be to enhance those due to baseline growth. No major structural changes are forecast, despite the magnitude of the growth. Once the processes of change, as described in chapters 3 and 4 have been set in motion, the incremental effects of the additional mines will not be dramatic, creating a difference in the degree rather than a difference in the kinds of changes that would occur.

Over the forecast period, the process of informally dividing the community into multiple social groupings will continue with the influx of mine construction workers and miners who will surely be a distinguishable group. Based on previous reactions, the issue of union membership may come to play an increasing role in the formation of these informal groupings. It should be noted, however, that this factor will also be strongly, if not predominantly, determined by the interaction patterns established by the miners and other workers that are working at the baseline mines.

The magnitude of mining in the economy of the area with the addition of the proposed project may actually reduce the diversity of the economic base of the region, as the economy becomes further dominated by the mining section. It is expected, however, that the forces such as tourism and regional trade, as well as the changing age structure and an increasing emphasis by community leaders on economic diversification will provide some countervailing pressure, reducing this potentially adverse effect. As discussed in Section 10.3.3, the extent of growth in the cumulative scenario may deflect attention and resources from the diversification effort.

The new social diversity and the increased economic activities of the area will cause the political procedures and structures of the community to undergo further adjustment along the lines suggested in Chapter 4. As the new coal mines are added to area economic activities, the influential position of mining interests will be further enhanced as their dominance in employment, financial resources, and extra-local linkages increased and as their linkages within the community become more firmly established. This in turn is likely to promote a counter response by the nonmining interests in the community. As a result, decision-making will become more complex and formalized, though the change over baseline

conditions will probably not be marked. In sum, the process of increased diversity/complexity that was initiated by the coal development activities of the 1970s will be continued and enhanced, but no major new trends are anticipated.

The projects will similarly accelerate the process of opening and widening the distribution of community resources and power that was initiated during the 1970s. As the incoming population grows in size and becomes established in and familiar with the community, they will make demands for access to resources, particularly positions of power. The increasing numbers of corporate executives and managers who are established members of the community will accelerate this process. In the near term, positions of power will be attained by newcomers most frequently by appointment or participation on voluntary committees and organizations. Over the longer term, especially as the proportion of newcomers in the population increases, elected positions will become more accessible to a wider variety of community residents. These changes are expected to occur under baseline conditions; the effect of the project will be to accelerate and intensify them. Although the status system has already begun to change -- with the declining importance of ranching and the significant generational transition that is occurring (as the "pioneers" die out) -- the strength of the old system and its continuing appeal to many of the newcomers will make the transition slow and gradual. It is not possible to state in advance what new patterns of status criteria will emerge, but it is likely that they will be somewhat more similar to national norms than they are now.

As discussed in chapters 3 and 4, Sheridan has always cultivated effective outside linkages. Consequently, the new projects and population, which will tend to increase the opportunities and importance of outside linkages, will have little important effect on the community in this regard, although residents are likely to take ever greater interest in state and national affairs as a result of their increased dependence on events and policies outside the local area.

Similarly, the process by which the interaction and communication patterns in the community will be disaggregated into clusters rather than integrated into a single unit will continue at an even more rapid pace. As discussed in chapters 3 and 4, the integration of community residents will take place to a greater and greater extent through this more diffused process as community size and diversity make it impossible for residents to be personally familiar with one another. Consequently, the type of community integration and affiliation experienced in the earlier days of Sheridan will not be reestablished over the forecast period, under either baseline or with-project conditions.

As a consequence, the coordination of community resources and initiation of new programs will become more complex and difficult, placing new demands upon leaders and followers alike. At this point, it does not appear likely that severe difficulties will be encountered in managing conflict, although it will probably become more difficult to gain active collaboration on a community-wide basis.

Sheridan has already gone past the point that there is much chance that things will return to "be like they were in the old days." The community has already changed. Most of the growth that has occurred has been seen as beneficial. Additional growth is generally viewed as good for the community, although the magnitude of growth forecast for the cumulative scenario may exceed residents' preferences. Once a community has gone past the point where the past is irrecoverable -- as in the transition from a shared history to a community of persons with diverse backgrounds -- fewer and fewer of the new changes are considered to be of great importance. This is Sheridan's present position.

It is anticipated that Sheridan will continue to be seen as a good place to live, with a good quality of life, good recreation opportunities, and pleasant people over the course of the forecast period. Nevertheless, longtime residents are likely to regret the loss of the oldtime sense of community and the increasing urban characteristics such as higher crime rates, less sense of personal security and familiarity, and diminished importance of agricultural values.

Sheridan has always been an elite community; the presence of those with wealth and status -- and the importance given to these characteristics -- has been one of its more noteworthy characteristics. The infusion of new population, including the new mine-related workers, will gradually erode this elitism. Those who have lived in Sheridan for a very long time -- who have graduated from high school there -- are likely to regret the changes that will occur during the next twenty years. These feelings will not be fully shared by the more recent arrivals, but it is likely that many of them, attracted as they were by these very attributes, will feel some loss as they compare the community at the end of the forecast period with the way it was when they first came. If the growth in population and employment proceeds as forecast, it is likely that Sheridan will become increasingly similar to national norms and will lose some of its distinctive character.

#### 10.7.3.4 Housing

As shown in Table 10.7.3.4-1, the housing demand impacts under the cumulative scenario in the city of Sheridan would begin in 1985 and extend through 2015. During this period, the number of additional units needed would rise from 117 units in 1985 to 2,280 units in 2000, before dropping to 1,125 additional units in 2015. Similarly, the number of additional units needed in the greater Sheridan area would increase from 35 units in 1985 to 760 units in 2000, before dropping to 374 units in 2015. As noted in Section 10.7.2.3, because of aggregate demand level in the county, this additional demand would not be within the current capacity of local builders.

#### 10.7.3.5 Facilities and Services

Table 10.7.3.5-1 summarizes the expected facility requirements for the cumulative scenario. These requirements are similar to those projected for the baseline, but reflect the greater population served. Planned expansion of shop space, fire station space, and sewage treatment capacity is projected for 1983. Additional capacity requirements are also projected for roads (1985, 1994, 2003), general administrative space (1985, 1993, 2001), and water storage and treatment.

Table 10.7.3.5-2 shows the cumulative projection requirements for government personnel, fire fighting personnel, and law enforcement vehicles. The requirement for general government personnel is expected to increase from 70 in 1983 to 106 in 2010, before declining to 97 by 2015. As shown in the table, the requirements for firefighting personnel and law enforcement vehicles follow similar patterns. By 2010, 15 additional police officers will be needed.

#### 10.7.3.6 Fiscal

Table 10.7.3.6-1 shows the cumulative scenario fiscal summary that results from the assumptions defined in Chapter 2. The negative impact that is forecast is primarily the result of larger sized facilities which raise total cost \$12.4 million above baseline levels by 2005. Although the cumulative scenario would not significantly impact the city's operating balance, because increases in revenues generated by the larger population are sufficient to compensate for the higher operating and maintenance costs, the large capital outlays exceed local revenue sources.

Due primarily to the increased capital requirements, therefore, the cumulative scenario is expected to have a negative impact on the district throughout the projection period which will have to be accommodated by an increase in revenues (especially grants from outside sources) and/or by modification of facility expansions. It is noteworthy that in the years in which large capital expenditures are not required, the annual balance for the cumulative scenario is almost identical to the baseline.

TABLE 10.7.3.4-1

Cumulative Scenario  
Housing Demand Impacts  
Sheridan County Allocation Areas  
(Housing Units)

Year	Sheridan County	Sheridan City	Greater Sheridan Area	Ranchester- Dayton Area	Rest of County
1980	0	0	0	0	0
1981	0	0	0	0	0
1982	0	0	0	0	0
1983	0	0	0	0	0
1984	0	0	0	0	0
1985	165	117	35	13	1
1986	885	607	206	70	3
1987	1,637	1,100	394	128	15
1988	1,744	1,164	420	141	19
1989	1,821	1,218	430	146	26
1990	1,913	1,283	447	151	31
1991	1,975	1,325	461	154	34
1992	2,005	1,342	476	159	35
1993	2,034	1,359	478	162	35
1994	2,079	1,389	489	166	36
1995	2,079	1,385	493	167	34
1996	2,256	1,511	529	178	38
1997	2,844	1,929	653	209	49
1998	3,138	2,130	720	236	52
1999	3,305	2,246	745	245	68
2000	3,359	2,280	760	250	69
2005	3,322	2,255	751	247	69
2010	3,038	2,062	687	226	63
2015	1,658	1,125	374	123	36

Source: Mountain West Research-North, Inc., 1982.

Note: Details may not sum due to rounding.



TABLE 10.7.3.5-1

Summary of Facility Requirements  
Cumulative Scenario

Year	Facility	Change in Capacity	Capital Outlay (1982 \$000)
1983	Shop Space (sq. ft.)	3,600 <sup>a</sup>	\$ 144 <sup>a</sup>
1983	Parks (acres)	67	1,742
1983	Fire Station Space (sq. ft.)	10,000	938 <sup>a</sup>
1983	Sewage Treatment (gals.)	2,300,000	10,000
1984	Roads (miles)	NA	75 <sup>b</sup>
1985	Roads (miles)	17.5	9,914 <sup>d</sup>
1985	Gen. Admin. Space (sq. ft.)	4,856	340 <sup>d</sup>
1986	Water Storage (gals.)	3,528,354	1,517 <sup>d</sup>
1986	Water Treatment (gals.)	3,528,354	1,693 <sup>d</sup>
1990	Parks (acres)	20	532 <sup>d</sup>
1993	Gen. Admin. Space (sq. ft.)	2,653	186 <sup>d</sup>
1994	Roads (miles)	10.9	6,197 <sup>d</sup>
1996	Sewer Collection (gals.)	318,599	647 <sup>d</sup>
1997	Parks (acres)	14	375 <sup>d</sup>
1998	Shop Space (sq. ft.)	864	35 <sup>d</sup>
2000	Water Storage (gals.)	10,000,000 <sup>c</sup>	2,000 <sup>c</sup>
2000	Water Treatment (gals.)	10,000,000 <sup>c</sup>	5,000 <sup>c</sup>
2001	Gen. Admin. Space (sq. ft.)	924	65 <sup>d</sup>
2003	Roads (miles)	1	553 <sup>d</sup>
2003	Parks (acres)	2.6	69 <sup>d</sup>

Source: Briscoe, Maphis, Murray, and Lamont, Inc.; B.Y. Analytics, 1983.

Note: NA = Not applicable.

<sup>a</sup>Planned expansion.

<sup>b</sup>Planned expenditure for general plan.

<sup>c</sup>Planned expansion when population increases by 15 percent over existing capacity

<sup>d</sup>Capital outlay occurs in preceding year.



TABLE 10.7.3.5-2  
 Personnel and Law Enforcement Vehicle Requirements  
 Cumulative Scenario  
 City of Sheridan

Year	Government Personnel	Firefighting Personnel	Law Enforcement Vehicles
1983	70	17	32
1984	70	17	32
1985	73	18	33
1990	89	22	41
1995	91	23	41
2000	100	25	45
2005	102	26	46
2010	106	27	48
2015	97	24	44

Source: Briscoe, Maphis, Murray, and Lamont, Inc.; B.Y. Analytics, 1983.

TABLE 10.7.3.6-1

Fiscal Summary: Cumulative Scenario  
City of Sheridan  
(\$000 1982)

FISCAL SUMMARY	1982	1983	1984	1985	1986	1987	1988	1989	1990
REVENUES TOTAL	9173	7116	7133	7369	7899	8336	8415	8475	8579
EXPENDITURES O & M	5389	5273	5290	5528	6059	6497	6576	6636	6741
CAPITAL	3664	4111	11174	4056	845	845	845	1377	845
DEBT PAYMENT	162	292	292	292	162	162	162	162	162
TOTAL	9215	9677	16756	9875	7066	7504	7583	8175	7748
FISCAL BALANCE									
ANNUAL		-2561	-9623	-2506	833	832	831	300	831
CUMULATIVE		-2561	-12184	-14690	-13857	-13025	-12194	-11894	-11063
FISCAL BALANCE NO ACTION									
ANNUAL		-1849	-2806	-112	835	835	834	650	834
CUMULATIVE		-1849	-4655	-4767	-3932	-3097	-2263	-1613	-779
	1995	2000	2005	2010	2015				
REVENUES TOTAL	8717	9377	9556	9879	9204	<p>Note: Details may not sum due to rounding.</p> <p>Because of limitations in the size of the computer model used to project population, it was possible to make annual projections through 2005. Thereafter, only the single years 2010 and 2015 were projected. Therefore, it was not possible to compute cumulative fiscal results for years following 2005.</p> <p>The large net deficit shown in this table result from the methodology used (see Section 2.3.4). In actuality, such deficits would not be allowed to occur --government officials would either find additional sources of revenues and/or reduce expenditures.</p> <p>NF= not forecast.</p>			
EXPENDITURES O & M	6879	7542	7721	8045	7368				
CAPITAL	1492	7910	845	845	845				
DEBT PAYMENT									
TOTAL	8371	15452	8566	8890	8213				
FISCAL BALANCE									
ANNUAL	346	-6074	990	989	991				
CUMULATIVE	-13777	-16297	-11903	NF	NF				
FISCAL BALANCE NO ACTION									
ANNUAL	996	-6005	995	993	993				
CUMULATIVE	1579	-654	448	NF	NF				

#### 10.7.4 Ranchester, Dayton, and Area

##### 10.7.4.1 Introduction

This section presents the cumulative scenario impact forecasts for Ranchester, Dayton, and the surrounding area. Section 10.7.4.2 presents the population and economic impact forecasts. Section 10.7.4.3 discusses social life in the Ranchester-Dayton area under the cumulative scenario. The housing impact forecasts are presented in Section 10.7.4.4. Facilities/services and fiscal forecasts are discussed in sections 10.7.4.5 and 10.7.4.6, respectively.

##### 10.7.4.2 Population and Economy

As shown in Table 10.7.3.2-1, population impacts in the Ranchester-Dayton area under the cumulative scenario would increase from 34 people in 1985 to 357 people in 1987 and then move slowly to 605 people in 2000 when the project-related population would be 22 percent of the area's total population. The population impact would decrease to 547 people by 2010 and to 298 people by 2015. In 2000, when the mines would have reached full operations employment, employment in the Ranchester-Dayton area would be 1,256 workers, or 207 workers above baseline employment of 1,049 workers. Labor income of \$20.2 million in 2000 would be \$5.3 million above baseline labor income of \$14.9 million.

##### 10.7.4.3 Social Life and Cultural Diversity

As was discussed in Section 10.7.4.2, the Ranchester-Dayton area will experience two cycles of population growth and decline under the cumulative scenario, with the populations of the two communities forecast to return to almost the same levels in 2015 as were reached in 1990. The first cycle extends from the mid-1980s, when the population and employment expand as the first mine construction and operations activities are initiated, to just after the turn of the century, when population and employment decline as some mine activities are phased out. The second cycle then extends to 2015 as population and employment increase, then once again decline as project activities are completed. The population and employment effects of the proposed mines on Ranchester and Dayton are forecast to be significant -- a maximum of just over 600 persons (22 percent of the area's total population) divided between the two communities, with most of the new jobs located in either Sheridan or Montana (at the mine sites). However, since both communities will have had extensive experience with population and employment cycles from the baseline mining activities initiated during the 1970s, it is anticipated that the nature and degree of population and employment change will be substantive but not dramatic, particularly since the growth will occur over a period of fifteen years (1985 to 2000).

The potential for growth presented by the construction and operation of the multiple mines will encourage residents and leaders of Dayton and Ranchester to consider their goals for the community carefully, and may lead them to take more active measures to control and direct it. Residents and leaders of the two communities have expressed general approval of growth -- if it is moderate and controlled -- but there is also a strong appreciation of the small-town character that the two towns currently possess. Since there is little chance that the essentially residential nature of the two communities will change over the forecast period, given their proximity to Sheridan, residents are likely to place a continuing premium on maintenance of the residential qualities that led them to choose to live in the two communities. There is already some expression of desire to limit growth in Dayton. The experience of residents in the two communities, as well as their observations of the effects of growth and the effectiveness of land use and zoning regulations in other Wyoming communities, is likely to enable them to institute such controls with less anxiety and sense of change than would have been possible before 1970.

In general, the proposed mines will serve to reinforce and increase the pace and magnitude of the trends initiated during the 1970s and carried forward in the baseline scenario. In the 1980s, both Dayton and Ranchester experienced once again, the consequences of dependence upon a single industry as forecast growth has been unrealized and residents have left following the slow-down in mine activity. Consequently, it is anticipated that residents of the communities will be increasingly willing to work in collaboration with the other communities in the greater Sheridan area to encourage diversification of the area economy. To far seeing residents, the problems created by the downturns in employment and population will be recognized as more difficult to address than those created by the anticipated level of growth.

If the communities receive the population increases that are forecast, some additional adjustment in community social organization will occur, as the communities have time to respond to their increased size and complexity. With communities the size of Dayton and Ranchester, the consequences of growth depend greatly upon the type of residential development (housing) that occurs, and -- related to this -- the type of new residents that enter the community. The effects will be substantially different, for example, if a large proportion of the newcomers to the two communities are transient construction workers, instead of miners, or a more diverse mix of "support" personnel. As discussed in Chapter 3, a substantial proportion of the growth occurring in the two communities during the 1970s was from Sheridan rather than from newcomers to the region. This is not expected to be the case over the forecast period. Because the communities are small, national trends which influence residential selection, housing availability, and preferences for particular settings can have a large effect on the changes that will occur, as well as on how the changes will be interpreted.

Within these constraints of forecasting, it is expected that the additional population will not result in major changes in the diversity/complexity of the community, although the sheer increase in size will probably encourage residents to view one another in terms of demographic descriptors rather than personal history and family relationships. Depending upon the nature and physical location of in-migrants, the process of social differentiation could be moderate or more pronounced. Experience to date indicates that residents in the two communities are likely to be relatively easy-going in their acceptance of newcomers.

Because of the communities' proximity to Sheridan, the increased population is expected to have minimal effects on the size or complexity of local business activity, although since the two communities are so closely tied to the greater Sheridan area (including the Decker mining area) their residents will share in the changes experienced throughout the area. As the population in the communities and in the region grow, the political processes will adjust to accommodate the newcomers and to enable service providers to meet the increased demands for facilities and services. As the population of the smaller communities grows, the role of county government will become more complex, bringing with it a greater complexity for communities such as Dayton and Ranchester, and increasing the need for intercommunity ties.

The project related changes in population and employment will add strength to the trend for change in the stratification system described in chapters 3 and 4. Because of the extent of the communities' ties to Sheridan, changes occurring in the stratification system in Sheridan will also affect the residents of Dayton and Ranchester. Within the community, it is expected that the newcomers of the 1970s will gain an increasing voice in community affairs during the 1980s, and that the newcomers of the 1980s and 1990s will therefore be dealing with a leadership and status system that has become accustomed to change. As in the past, it is anticipated that access to resources and to participation in community affairs will be easier for newcomers to achieve than acquisition of status and prestige.

As a result of the increased diversity and size, the baseline trends toward lessened community-wide integration will be hastened. As the process of social differentiation proceeds and the criteria for distinguishing among residents become more clearly recognized and defined, residents are likely to become increasingly affiliated with social groupings rather than the community as a whole. Voluntary organizations will become more important to all residents as mechanisms of social integration and vehicles for community participation.



Although the past growth was generally seen as positive, residents of the two communities, particularly Dayton, have expressed a desire to control and limit future growth. Consequently, if the population increases forecast for the two communities does occur, a number of residents will feel that their community -- and their quality of life -- has been adversely affected. This will be particularly true if residential development is not adequately controlled and the visual quality and organizational efficiency of the communities is adversely affected by haphazard and unaesthetic residential developments.

Many of the residents of the two communities will feel at least inconvenience and annoyed by the disruption and congestion created by the increased population, although, because growth is not forecast to be either abrupt or extreme, these effects will not be major. The increased population will raise complaints about traffic and, probably, about increased crime and decreased personal interactions. Because of the region's repeated experience with temporary growth, the realization that the forecast period reflects a period of temporary though relatively prolonged growth should be widespread. Those who intend to remain in the community for the long-term are therefore likely to respond to the changes with both detachment and reserve -- tempered as they have been by the experiences of the 1970s and 1980s. As described in Section 10.3.3, the increased business and communications ties, along with an increased flow of persons through the region, are expected to cause the characteristics of the entire region to become more similar to those of the nation in terms of the well-being indicators such as crime and divorce. These changes will occur primarily as a result of in-migration of population with characteristics more similar to the national average, rather than from deterioration in the quality of life to the extent that would cause people to develop socially undesirable behaviors.

#### 10.7.4.4 Housing

As shown in Table 10.7.3.4-1, the housing demand impacts under the cumulative scenario in the Ranchester-Dayton area would begin in 1985 and extend through 2015. During this period, the number of additional units needed in the Ranchester-Dayton area would rise from 13 units in 1985 to 250 units in 2000, before dropping to 123 units by 2015. As noted in Section 10.7.2.3, because of aggregate demand in the county this additional demand is not within the current capacity of local builders.

#### 10.7.4.5 Facilities and Services

##### Ranchester

Table 10.7.4.5-1 shows the summary of facility requirements for the cumulative scenario. The data include the planned expansion of sewage treatment capacity (168,000 gallons) in 1983, at a cost of \$115,000. Based on the demand standards, additional sewage treatment and collection capacity beyond the planned expansion would be required in 1983 for the cumulative scenario at a cost of approximately \$127,000. Under the cumulative scenario there is forecast a need for additional developed park capacity in 1985 and 1993. Total costs for facility expansion are \$322,000 under the cumulative scenario, \$58,000 above the baseline level of \$264,000.

Total with-project requirements for government personnel are projected to increase from the current three, to four by 1990, and remain steady thereafter.

##### Dayton

Table 10.7.4.5-2 shows the summary of facility requirements for the cumulative scenario. The data indicate with-project capacity requirements for general administrative space (1983), water storage (1983),



TABLE 10.7.4.5-1

Summary of Facility Requirements  
Cumulative Scenario  
Town of Ranchester

Year	Facility	Change in Capacity	Capital Outlay (1982 \$000)
1983	Sewage Treatment (gals.)	168,000 <sup>a</sup>	115 <sup>a</sup>
1983	Sewage Treatment (gals.)	38,362	49 <sup>b</sup>
1983	Sewage Collection (gals.)	168,000 <sup>a</sup>	NA
1983	Sewage Collection (gals.)	38,362	78 <sup>b</sup>
1985	Parks (acres)	2.1	55 <sup>b</sup>
1993	Parks (acres)	0.9	25 <sup>b</sup>

Source: Briscoe, Maphis, Murray, and Lamont, Inc.,; B.Y. Analytics, 1983.

Notes: NA = not applicable (paid for via development). Only those capital requirements greater than \$10,000 are shown. (See Appendix C.)

<sup>a</sup>Planned expansion.

<sup>b</sup>Capital outlay occurs in the preceding year.

TABLE 10.7.4.5-2

Summary of Facility Requirements  
Cumulative Scenario  
Town of Dayton

Year	Facility	Change in Capacity	Capital Outlay (1982 \$000)
1983	Gen. Admin. Space (sq. ft.)	431	30
1983	Water Storage (gals.)	405,674	174
1985	Roads -- Collector (miles)	0.186	89 <sup>b</sup>
1985	Roads -- Arterial (miles)	0.07	48 <sup>b</sup>
1985	Parks (acres)	2.28	59 <sup>b</sup>
1985	Sewage Treatment (gals.)	36,001	46 <sup>b</sup>
1985	Sewage Collection (gals.)	36,001	73 <sup>b</sup>
1993	Roads -- Collector (miles)	0.083	40 <sup>b</sup>
1993	Roads -- Arterial (miles)	0.031	22 <sup>b</sup>
1993	Parks (acres)	1.047	27 <sup>b</sup>

Source: Briscoe, Maphis, Murray, and Lamont, Inc.; B.Y. Analytics, 1983.

<sup>a</sup>Only those outlays exceeding \$10,000 are shown.

<sup>b</sup>Capital outlay occurs in the preceding year.

roads (1985, 1993), parks (1985, 1993), and sewage treatment and collection (1985). Total costs of improvements for the cumulative scenario are \$608,000 compared to \$358,000 in the baseline.

The projection of personnel requirements indicates with-project government personnel to increase from the existing three, to four, by 1990. Total requirements for firefighting personnel would increase from the existing 14 to 18 by 1990, and to 20 by 2000, before gradually declining. (See Table 10.7.4.5-3).

#### 10.7.4.6 Fiscal

##### Ranchester

Table 10.7.4.6-1 shows the fiscal summary for the cumulative scenario. The data show a negative annual balance in each year through 1990 at levels somewhat higher than those forecast under the baseline scenario. Additional capital requirements increase the cumulative deficit that was forecast in the baseline, extending the cumulative deficit through 2000. For the entire forecast period, the with-project fiscal impacts are adverse. In 1995, for example, the cumulative scenario worsens the cumulative fiscal balance by \$182 million (\$268 million with-project deficit versus \$86 million baseline deficit). In 2005, the adverse project impacts are somewhat larger, a difference of \$221 million (\$162 million with-project surplus versus \$383 million baseline surplus). Considering the analytic approach, the overall project effects on Ranchester are not considered great in terms of either total budget, given the community's ability to improve conditions by obtaining supplemental funds and/or managing expenditures.

##### Dayton

The cumulative scenario would result in a negative fiscal impact to the town (see Table 10.7.4.6-2). In 2005, the cumulative fiscal balance would be negative \$886,000, or \$315,000 more than the baseline alternative where a cumulative deficit of \$571,000 was forecast. It should be noted that these deficits result from assumptions that local officials will not respond to deficit financial conditions by seeking additional revenues or moderating expenditures. Given these assumptions, the forecast deficits do not indicate major problems for Dayton.

#### 10.7.5 Rest of County

##### 10.7.5.1 Introduction

This section presents the cumulative scenario impact forecasts for the rest of Sheridan County. Section 10.7.5.2 presents the population and economic impact forecasts for the area. Because the proposed mines would not have significant population impacts in the area, detailed housing, facilities/services, and fiscal forecasts are not presented here.

##### 10.7.5.2 Population and Economy

As shown in Table 10.7.3.2-1, population effects on the rest of Sheridan County under the cumulative scenario would increase from 2 people in 1985 to 143 people in 2005 and then decline to 73 people in 2015. In 2005, the with-projects population would be 4.2 percent above baseline levels. In 2000, when the mines would have reached full operations employment, employment of residents in the rest of Sheridan County would be 2,073 workers, or 126 workers above the baseline level of 1,947 workers. Labor income of \$27.3 million in the year 2000 would be \$2 million above baseline labor income of \$25.3 million, an increase of 7.9 percent.

TABLE 10.7.4.5-3  
Personnel Requirements Cumulative Scenario  
Town of Dayton

Year	General Government Personnel	Firefighting Personnel
1982	3	14
1983	3	14
1984	3	14
1985	3	14
1990	4	18
1995	4	18
2000	4	20
2005	4	18
2010	4	18
2015	4	17

Source: Briscoe, Maphis, Murray, and Lamont, Inc.; B.Y. Analytics, 1983.

TABLE 10.7.4.6-1

Fiscal Summary: Cumulative Scenario  
Town of Ranchester  
(\$000 1982)

FISCAL SUMMARY	1982	1983	1984	1985	1986	1987	1988	1989	1990
REVENUES TOTAL	960	399	401	408	426	444	449	452	455
EXPENDITURES									
O & M	359	346	348	358	381	405	411	415	419
CAPITAL	541	242	71						
DEBT PAYMENT	60	60	60	60	60	60	60	60	60
TOTAL	960	648	479	418	441	465	471	475	479
FISCAL BALANCE									
ANNUAL		-249	-78	-10	-15	-21	-22	-23	-24
CUMULATIVE		-249	-327	-337	-352	-373	-395	-418	-442
FISCAL BALANCE NO ACTION									
ANNUAL		-249	-25	-11	-10	-8	-11	-11	-12
CUMULATIVE		-249	-274	-285	-295	-287	-298	-309	-321
	1995	2000	2005	2010	2015				
REVENUES TOTAL	461	482	458	464	443	<p>Note: Details may not sum due to rounding.</p> <p>Because of limitations in the size of the computer model used to project population, it was possible to make annual projections through 2005. Thereafter, only the single years 2010 and 2015 were projected. Therefore, it was not possible to compute cumulative fiscal results for years following 2005.</p> <p>The large net deficit shown in this table result from the methodology used (see Section 2.3.4). In actuality, such deficits would not be allowed to occur --government officials would either find additional sources of revenues and/or reduce expenditures.</p> <p>NF= not forecast.</p>			
EXPENDITURES									
O & M	427	454	424	431	404				
CAPITAL		4							
DEBT PAYMENT									
TOTAL	427	458	424	431	404				
FISCAL BALANCE									
ANNUAL	34	24	35	33	39				
CUMULATIVE	-268	-116	162	NF	NF				
FISCAL BALANCE NO ACTION									
ANNUAL	46	46	53	50	50				
CUMULATIVE	-86	142	383	NF	NF				



TABLE 10.7.4.6-2

Fiscal Summary: Cumulative Scenario  
Town of Dayton  
(\$000 1982)

FISCAL SUMMARY	1982	1983	1984	1985	1986	1987	1988	1989	1990
REVENUES TOTAL	567	382	384	312	338	349	354	357	360
EXPENDITURES									
O & M	444	285	288	283	221	238	242	246	248
CAPITAL	123	338	441	125	125	125	125	138	125
TOTAL	567	535	649	328	346	363	367	376	373
FISCAL BALANCE									
ANNUAL		-233	-345	-17	-15	-13	-13	-19	-13
CUMULATIVE		-233	-578	-594	-610	-623	-636	-656	-668
FISCAL BALANCE NO ACTION									
ANNUAL		-172	-116	-17	-17	-15	-15	-18	-15
CUMULATIVE		-172	-288	-385	-322	-337	-352	-370	-385

	1995	2000	2005	2010	2015	
REVENUES TOTAL	367	389	364	378	348	<p>Note: Details may not sum due to rounding.</p> <p>Because of limitations in the size of the computer model used to project population, it was possible to make annual projections through 2005. Thereafter, only the single years 2010 and 2015 were projected. Therefore, it was not possible to compute cumulative fiscal results for years following 2005.</p> <p>The large net deficit shown in this table result from the methodology used (see Section 2.3.4). In actuality, such deficits would not be allowed to occur --government officials would either find additional sources of revenues and/or reduce expenditures.</p> <p>NF= not forecast.</p>
EXPENDITURES						
O & M	255	265	242	247	226	
CAPITAL	125	135	125	125	125	
TOTAL	380	400	367	372	351	
FISCAL BALANCE						
ANNUAL	-13	-11	-3	-2	-4	
CUMULATIVE	-823	-875	-886	NF	NF	
FISCAL BALANCE NO ACTION						
ANNUAL	-16	-18	-6	-6	-5	
CUMULATIVE	-483	-544	-571	NF	NF	

#### 10.7.5.3 Other Topical Areas of Interest

No other areas of social or economic life in the rest of Sheridan County would be significantly affected by the cumulative scenario.

### 10.8 Mitigation and Enhancement Measures

#### 10.8.1 Introduction

Socioeconomic impacts from the cumulative development of all three proposed mines would parallel the pattern described under chapters 7, 8, and 9. Few significant impacts would be experienced in Big Horn County outside the Crow Reservation, while substantial impacts would occur in the Sheridan area. This section summarizes the key mitigation issues that would need to be addressed should development similar to the cumulative scenario occur. A more specific program for response to these issues is presented in an accompanying working paper, "Generic Mitigation Program." In view of the uncertainties associated with the timing and magnitude of the proposed actions, recommendations regarding particular mitigation measures would be premature.

#### 10.8.2 Big Horn County

Even under the cumulative development scenario, population growth in Big Horn County due to the Decker area mines would be small -- generally, less than 3 percent over the baseline case. The distribution of that population might cause problems for one rural elementary school district by increasing enrollment from 10 to 30. At the same time, the tax revenues accruing to county jurisdictions, together with the distribution of enrollment increases over several years, would provide the time and resources to accommodate this type of impact -- should it occur.

Housing demand would also exceed 1982 local construction capacity in Big Horn County producing a potential cumulative deficit of about 100 units by the end of the century. It should be noted that this possibility ignores any potential for expansion by local builders and developers, as well as the presence of much greater capacity in the neighboring Billings area. The deficit potential thus rests on highly conservative assumptions and should not be regarded as an important mitigation issue.

The employment of local residents -- particularly Native Americans -- of Big Horn County, as well as the use of mine-generated tax monies for economic development, would offer important enhancement opportunities under the cumulative scenario. If development proceeds, immediate attention should be given to these issues by company and local officials.

#### 10.8.3 Sheridan Area

##### 10.8.3.1 Overview

Under the cumulative scenario, the population of Sheridan County would be about 26 percent greater in 2000 than under the baseline case, and more than 40 percent above estimated 1982 levels. However, this increase would take place over a period of years with a compound annual growth rate of about 2 percent between 1985 and 2000. It is estimated that the most rapid growth would occur between 1985 and 1990 when a compound annual rate of 4 percent would be reached. This is not an unmanageable growth rate, particularly in the context of other Powder River Basin communities such as Gillette and Douglas, Wyoming, and Colstrip, Montana -- not to mention Sheridan's own historical experience. Moreover, jurisdictions like

the city of Sheridan have already expanded many elements of public infrastructure in anticipation of growth. Bearing these preliminary points in mind, the discussion will now move on to particular mitigation issues.

#### 10.8.3.2 Sheridan County

Sheridan County is projected to experience significant fiscal deficits in the baseline case, due to both capital costs and increasing operating and maintenance costs for roads, bridges, and the courthouse. At present, it appears unlikely that Sheridan will be able to carry out its 1983 capital improvements program. The county should reevaluate the direction it is heading with capital and public service expenditures. The negative fiscal balance under baseline conditions would be compounded by the proposed actions with projected cumulative deficits in 2005 rising \$11 million to about \$54 million. Hence, as has been suggested previously, the county should seek grants to cover some of these road and bridge expenses and should definitely continue with the one-percent local option sales tax. As the location of residential development affects county expenditures, residential growth should be encouraged in the incorporated communities rather than in the unincorporated portions of the county. This may necessitate some joint planning and cooperation between the county and its municipalities to ensure the compatibility of their respective policies.

Housing in Sheridan County would be another potential problem area to be addressed by mitigation measures. A cumulative deficit of over 900 units would be reached by 1987, if the very conservative housing development assumptions (see Section 2.3.3.2) apply. While less conservative assumptions and more extended project development schedules would admittedly lead to much lower deficits, the basic conclusion is that the mitigation management process must be prepared to include housing issues within its purview.

At peak demand, the Sheridan County Memorial Hospital is forecast to require about 30 additional beds under the cumulative scenario. Of these, about half would be directly or indirectly due to the proposed actions, while budget deficits would increase by over \$1 million. Thus, under the cumulative scenario, hospital facilities could be an important mitigation issue. Nevertheless, trends in medical care (see Section 7.8.2) and proposed action uncertainties make definitive conclusions unwarranted at this juncture.

School districts No. 1 and No. 2 would face enrollment increases nearly twice those forecast under the Consol Level 2 scenario. The likely impacts of cumulative mine development would be similar to but greater than those outlined in Section 8.8.2. The mitigation process would thus need to directly address the problems of financing facilities expansion as well as operating and maintenance budgets. Appropriate mitigation alternatives are listed in the "Generic Mitigation Program" paper.

#### 10.8.3.3 City of Sheridan

Under the baseline projections, the city of Sheridan shows additional needs through 2015 for parks, police vehicles, general administrative space, water treatment and storage capacity, street repair, and shop space. The city currently has \$1.3 million of bonding capacity, revenues from the optional one-cent sales tax (if continued), and potential for continuing grant funds from state and federal agencies. The city is projected to have an overall positive fiscal balance in the baseline case, except for capital costs. However, with the proposed actions, the city would show large deficits. Given the additional capital requirements projected under the cumulative scenario, the city should reexamine its capital requirements using a Capital Improvements Program approach. The city should take care not to embark on capital facilities which create operating and maintenance costs for which financing is doubtful. Also, the city should avoid additional bonding until growth is certain.

As the probable location of most of the socioeconomic impacts from the Decker area mines, Sheridan should also be the focus for distribution of any revenue transfers between Montana and Wyoming. The mitigation management process must seek to assure that financing is available when necessary. Techniques that could be used include obtaining funds from third-party sources through grants or loans, guaranteeing loans or debt financing, and prepaying water or sewer tap hookups. An Overthrust Industrial Association (OIA) or Colorado Joint Review Process (CJRP)-type organization, as suggested in the mitigation paper, would not only aid the exchange of information to the benefit of Sheridan's financial planning (especially regarding bond financing), but may also assist Wyoming's efforts to receive transfers from Montana, and assist in focusing company mitigation efforts. Regardless of whether or not this organization is established, the city should reexamine its financial policies to ensure that new residents are covering their own incremental costs in purchasing homes. Streets, drainage, water and sewer, and parks are the principal areas where this can and should occur.

#### 10.8.3.4 Rancheater and Dayton

Small expansions of facility and service capacities would be needed in both Rancheater and Dayton under the cumulative scenario. By 2005, both communities would also have incurred negative net fiscal balances, if no corrective action were taken. Under the cumulative scenario, previous recommendations that the respective local governments review growth management policies to ensure that the costs of expanding and operating public facilities/services are borne by new development are doubly applicable. Dayton, in particular, should avoid additional bonding to finance new capital expenditures.





PERSONAL COMMUNICATIONS



PERSONAL COMMUNICATIONS

NAME	AGENCY	TITLE	DATE
Adam, Chuck	Governor's Council on Aging, Sheridan, Wyo.	Member	9 Dec. 1982
Adams, Delbert	Bureau of Reclamation, Ft. Smith, Mont.	Project Engineer	4 Nov. 1983
Anderson, Dr. Willard	Hardin High School District No. 2 and Big Horn County Elementary School District No. 17H, Mont.	Superintendent of Schools	3 Nov. 1982
Badgett, Art	City of Dayton, Wyo.	Mayor	1 Oct. 1982
Balsamo, Joe	Big Horn County Health Dept., Wyo.	Counselor	18 Nov. 1982
Berntsen, Ray	Montana Dept. of Fish, Wildlife, and Parks, Billings, Mont.	Regional Parks Manager	3 Nov. 1982 15 Nov. 1982
Binnewies, Bill	National Park Service Bighorn Canyon Nation- al Recreation Area	Superintendent	9 Nov. 1982
Buffalohorn, John	Bureau of Indian Affairs, Housing Improvement Program, Billings, Mont.	Director	24 Nov. 1982
Butz, Dorman	Bureau of Indian Affairs, Land Operations, Crow Agency, Mont.	Soil Conservationist	15 Nov. 1982
Carley, Kathy	Wyoming Recreation Com- mission, Cheyenne, Wyo.	Communications Officer	29 Oct. 1982
Carrol, Don	Sheridan, Wyo.	Realtor	27 Oct. 1982
Carrol, John	Sheridan, Wyo.	Builder	27 Oct. 1982
Carrol, Steve	Sheridan, Wyo.	Realtor	27 Oct. 1982

Personal Communications (cont.)

NAME	AGENCY	TITLE	DATE
Caton, David	St. Xavier, Mont.		4 Nov. 1982
Chepulis, Dave	Big Horn County Appraisal and Classification Office, Hardin, Mont.	Appraiser	10 Dec. 1982
Cleson, Avis	Big Horn Bank, Hardin, Mont.	Loan Officer	28 Oct. 1982
Cline, Stanley	Bureau of Indian Affairs, Crow Agency, Mont.	Range Conservationist	17 Nov. 1982
Cobb, Doug	School District No. 1, Sheridan County, Wyo.	Superintendent of Schools	8 Nov. 1982
Cochran, John	Farmers Home Adminis- tration, Sheridan, Wyo.	Director	27 Oct. 1982
Conklin, Dave	Montana Dept. of Fish, Wildlife, and Parks, Miles City, Mont.	Regional Parks Manager	3 Nov. 1982
Cough, Margie	Big Horn County, Mont.	Planner	2 Dec. 1982
Culp, Jim	Big Horn County Fire Dept., Mont.	Fire Marshall	8 Dec. 1982
Cumin, Cal	Cumin Associates, Billings, Mont.	Planning Consultant	Nov. 1982 2 Dec. 1982
Cunningham, Larry	St. Charles Mission School, Pryor, Mont.	Principal	28 Oct. 1982
Davis, Phil	City of Ranchester, Wyo.	Mayor	22 Oct. 1982
Dixon, Ky	Senior Citizens Center, Sheridan, Wyo.	Executive Director	9 Dec. 1982
Duffy, John	Crow Agency, Mont.	Financial Consultant to Crow Tribe	12 Nov. 1982
Ewan, George	Salvation Army/ Board of Education, Sheridan, Wyo.	Director/ Previous Member	10 Dec. 1982

Personal Communications (cont.)

NAME	AGENCY	TITLE	DATE
Frith, Pete	Sheridan County Fire Dept., Wyo.	Fire Chief	3 Nov. 1982
Fritzler, Minnie Ellen	Crow Indian Tribal Government, Crow Agency, Mont.	Personnel Director	21 Oct. 1982
Gibson, John	U.S. Forest Service, Custer National Forest, Billings, Mont.	Public Information Officer	12 Nov. 1982
Graves, Eva	Elementary School District No. 16 (Community), Big Horn County, Mont.	Teacher	7 Dec. 1982
Hart, Alice	Big Horn County Public Welfare Dept., Mont.	Supervisor	25 Apr. 1983
Helvey, Barbara Burfisher	Elementary School District No. 1 (Squirrel Creek), Decker, Mont.	Teacher	7 Dec. 1982
Hochhalter, Henry	City of Hardin, Mont.	Mayor	Nov. 1982
Hollingsworth, Joe	Sheridan County, Wyo.	County Engineer	Nov. 1982 3 Nov. 1982
Holst, Aaron	Sheridan Fire Dept., Sheridan, Wyo.	Fire Chief	4 Nov. 1982
Holthausen, Dick	U.S. Forest Service, Bighorn National Forest Office, Sheridan, Wyo.		7 Nov. 1982
Jackson, Gordon	Bureau of Indian Affairs, Forestry Dept., Crow Agency, Mont.	Fire Management Officer	3 Nov. 1982
Jayne, Les	Sheridan County, Sheridan, Wyo.	Planner	29 Oct. 1982 Nov. 1982
Jeanotte, Duane	Indian Health Service Hospital, Crow Agency, Mont.	Service Unit Director	4 Nov. 1982
Jobes, Pat	Montana State University, Sociology Dept., Bozeman, Mont.	Professor	11 Jan. 1983



Personal Communications (cont.)

NAME	AGENCY	TITLE	DATE
Johnson, Bill	Sheridan County Sheriff's Dept., Sheridan, Wyo.	Sheriff	22 Oct. 1982
Johnson, Don	Ranchester Rural Fire District, Ranchester, Wyo.	Chief	10 Nov. 1982
Ketcham, Gary	Sheridan County, Wyo.	Fairgrounds Manager	16 Nov. 1982
Krout, Roger	Sheridan Police Department, Sheridan, Wyo.	Chief of Police	4 Nov. 1982 10 Dec. 1982
LaCounte, Larry	High School District No. 2 and Elementary School District No. 27, Lodge Grass, Mont.	Superintendent of Schools	4 Nov. 1982
Limber Hand, Dennis	Montana Power Company Colstrip, Mont.		3 Dec. 1982
Lind, Doline	Big Horn County Health Dept., Mont.	Director	18 Nov. 1982
Lix, George	City of Lodge Grass, Mont.	Mayor	5 Nov. 1982
Loomis, Gale	Crow Indian Tribal Government, Crow Agency, Mont.	Manager	3 Nov. 1982
Lorenzen, Loal	County Commission/ Wyo-Mont Industrial Association, Sheridan, Wyo.	County Commissioner/ Representative	9 Dec. 1982
Lupert, Tom	Big Horn County Ambulance, Mont.	Administrator	7 Dec. 1982
Lynch, Robert	Pryor High School District No. 3 and Pryor Elementary, Pryor, Mont.	Superintendent of Schools	28 Oct. 1982
McClain, Tom	Memorial Hospital of Sheridan County, Wyo.	Assistant Administrator	22 Oct. 1982
Meister, Alice	Sheridan County Fulmer, Public Library, Sheridan, Wyo.	Librarian	4 Nov. 1982
Michael, Nancy	Project Youth, Inc., Time-Out Program, Sheridan, Wyo.	Director	8 Dec. 1982

Personal Communications (cont.)

NAME	AGENCY	TITLE	DATE
Miller, Jean	Big Horn County Library, Mont.	Librarian	18 Nov. 1982
Millsap, Deward	Elementary School District No. 29, Wyola, Mont.	Principal	4 Nov. 1982
Morrin, Larry	Bureau of Indian Af- fairs, Billings, Mont.	Realty Specialist	17 Nov. 1982
Mullins, Jeff	Wyola, Mont.		5 Nov. 1982
Naugle, Herbert	Indian Health Service, Billings, Mont.	Social Services Consultant	10 Nov. 1982
Neiberg, Marvin	Burlington Northern, Transportation Division, Billings, Mont.		Dec. 1982
Nesbett, Albert	Planning Commission, Sheridan, Wyo.	Chairman	10 Dec. 1982
Parsian, Douglas	Bureau of Indian Affairs, Police Dept., Crow Agency, Mont.	Special Agent	5 Nov. 1982
Pacini, Paul	Montana Dept. of Fish, Wildlife, and Parks, Helena, Mont.	State Recreation Planner	3 Nov. 1982
Paine, Mary	Sheridan County, Division of Public Assistance and Social Services, Sheridan, Wyo.	Director	3-4 Nov. 1982
Patterson, Betty	Sheridan County Fulmer Lib- rary Branch, Ranchester, Wyo.	Librarian	Oct. 1982
Pease, Myron	Bureau of Indian Affairs, Billings, Mont.	Loan Officer	9 Nov. 1982
Pelesky, Tony	City of Sheridan, Wyo.	Public Works Director	Nov. 1982
Peterson, Art	Bureau of Indian Affairs, Crow Agency, Mont.	Loan Officer	12 Nov. 1982

Personal Communications (cont.)

NAME	AGENCY	TITLE	DATE
Petersen, Larry	Montana Board of Crime Control, Helena, Mont.		June 1981
Pickett, Lloyd	Bureau of Indian Affairs, Crow Agency, Mont.	Loan Officer	12 Nov. 1982
Plentyhawk, Art	Crow Housing Authority, Crow Agency, Mont.	Director	29 Oct. 1982
Porter, Bill	Memorial Hospital of Sheridan County, Wyo.	Comptroller	22 Oct. 1982
Rader, Clyde	Sheridan, Wyo.	Realtor	29 Oct. 1982
Raymond, Robert	Indian Health Services, Dept. of Health and Human Services, Billings, Mont.	Assistant Area Director	12 Nov. 1982
Renteria, Bob	Wyoming Recreation Commission, Cheyenne, Wyo.	Project Officer	29 Oct. 1982
Representative	Bureau of Land Management, Public Affairs, Billings, Mont.		15 Nov. 1982
Rider, Walt	Big Horn County Sheriff's Dept., Mont.	Sheriff	18 Nov. 1982
Rokita, Rusty	Rokita and Associates, Hardin, Mont.	Tribal Consultant	Nov. 1982 12 Nov. 1982
Round Face, Edward	Crow Tribal Indian Government, Crow Agency, Mont.	Associate Judge	4 Nov. 1982
Rudolph, Carol	Sheridan County Commissioner's Office, Sheridan, Wyo.	Clerk	22 Oct. 1982
Sanders, Cliff	City of Sheridan, Wyo.	City Engineer	29 Oct. 1982 4 Nov. 1982
Sanderson, Bob	Sanderson, Stewart, and Gaston, Billings, Mont.	Developer	5 Jan. 1983
Sanger, Dan	Centennial Engineering, Sheridan, Wyo.	Planner	27 Oct. 1982

Personal Communications (cont.)

NAME	AGENCY	TITLE	DATE
Seader, Soni	Big Horn County Commissioner's Office, Mont.	Commissioner	18 Nov. 1982
Shorma, Gary	Wyoming Fish and Game, Sheridan, Wyo.	Warden	29 Oct. 1982
Shovlain, E.R.	School District No. 2, Sheridan County, Wyo.	Superintendent	18 Nov. 1982
Sinclair, Mike	Big Horn County Memorial Hospital, Mont.	Administrator	18 Nov. 1982
Singer, Clifford	Bureau of Indian Affairs, Crow Agency, Mont.	Facilities Manager	3 Nov. 1982 14 Dec. 1982
Sorrels, Harley	Montana Dept. of Fish, Wildlife, and Parks, Plenty Coups Memorial State Park, Pryor, Mont.	Caretaker	28 Oct. 1982
Spang, Zane	Northern Cheyenne Career Development, Lame Deer, Mont.		3 Dec. 1982
Sterling, Rita	Indian Health Service, Crow Agency, Mont.	Community Health Nurse	10 Nov. 1982
Swingle, D.	Sheridan Recreation District, Sheridan, Wyo.	Director	Oct. 1982
Tower, Margene	Indian Health Service, Billings, Mont.	Mental Health Consultant	10 Nov. 1982
Turns Plenty, Roger	Pretty Eagle School St. Xavier, Mont.	Principal	3 Nov. 1982
Vachowski, Brian	U.S.Forest Services, Bighorn National Forest Office, Sheridan, Wyo.	Forester/ Recreation Specialist	28 Oct. 1982
Verbance, Anne	Elementary School District No. 17K (Big Bend), Big Horn County, Mont.	Teacher	7 Dec. 1982
Wilcoxon, Diane	Women's Center, Sheridan, Wyo.	Director	8 Dec. 1982

Personal Communications (cont.)

NAME	AGENCY	TITLE	DATE
Williamson, Jerry	Elementary School District No. 27 (Corral Creek), Big Horn County, Mont.	Teacher	7 Dec. 1982
Wilson, Roger	Wyoming Game & Fish, Sheridan, Wyo.	Wildlife Management Coordinator	12 Nov. 1982
Windy Boy, Janine	Little Big Horn Community College, Crow Agency, Mont.	Executive Director	12 Nov. 1982 3 Nov. 1982



BIBLIOGRAPHY



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1978 1978 Montana Statewide Comprehensive Outdoor Recreation Plan. Helena. March.
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1981 Wyoming State Comprehensive Outdoor Recreation Plan, 1980. Cheyenne.
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1981a Wyoming Automatic Traffic Recorder Report. Cheyenne.  
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